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The Anti-Autolytic Action of Blood Serum and its Relation to Hyaline Changes in Uterine Fibroids.*

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HYALINE change as occurring in uterine fibroids receives, as a rule, but scant attention in any description of the degenerations found in these tumours. In many analyses of degenerations in fibroids it is no more than mentioned, while in others it is described under some such name as fibrous degeneration[1]. This latter is a complete misnomer if it suggests any *new* formation of fibrous tissue.

Noble,[2] from 2,274 cases, puts the frequency of hyaline degeneration at 3·35 per cent., while McDonald,[3] in a recent article based on 700 cases, places it highest with 18 per cent. Cullen,[4] however, goes much further: "In nearly every myoma there is hyaline degeneration in *some* part of the growth."

My own experience, based on a careful examination of over 100 specimens, is that hyaline change (very often slight in amount no doubt) is to be found in almost every fibroid. While certainly more marked in fibroids of medium or large size, I have seen it well developed throughout a small interstitial fibroid measuring $\frac{3}{8}$in. in diameter, and even in subperitoneal seedlings. Several pieces of a fibroid may have to be cut before finding an affected area, but as a rule in one large section the typical appearances of at least the early stages can be seen. The low percentages given above probably represent the more advanced degrees.

Hyaline change may or may not be the only sign of degeneration. Œdematous fibroids usually show it to a very marked degree, especially where cysts are present. In necrobiotic fibroids a tendency in the same direction is invariable, but here in addition a certain amount of granular change is seen.

Distribution.

Any part of a fibroid may be affected, but more commonly the

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central portions show it first, or if the whole be affected then the central portions are most advanced. An exception must be made in the case of pedunculated tumours: in these the hyaline change is most marked furthest from the pedicle.

Macroscopical Appearances.

The naked-eye appearances of a fibroid affected with hyaline degeneration vary considerably. In the slighter degrees no deviation from the ordinary may be seen. A more advanced specimen will show areas with less of the usual wavy appearance, and the tumour becomes harder and more difficult to cut; while at a still later stage areas form which are almost cartilaginous to the knife and more or less resemble cartilage to the eye.

The colour, as a rule, remains whitish or yellowish-white, but occasionally a reddish tint may supervene. According to Kelly and Cullen[5] the following tints may be observed: whitish-yellow, greyish-blue, greyish-red, yellowish-brown, pink, dark-red or reddish-blue.

Microscopical Appearances.

The slighter cases show a hyaline thickening of the connective-tissue fibres, irregular and streaky in appearance and indefinite in its limits—the affected streams of fibres tailing off gradually into the normal condition. The nuclei early lose all staining property. In this stage the muscle bundles suffer no injury and remain absolutely normal, the intra-fascicular connective tissue being unaffected. A little later this latter also becomes involved, and now the muscle bundles become gradually strangulated and finally atrophy. So that in an advanced case the appearance presented is of an almost homogeneous mass, translucent on section showing perhaps in places a vague outline of the course of fibres. No lined vessels are visible, but fairly numerous flattened or irregular lacunæ are present, often empty but sometimes containing a nucleus which is probably usually that of a wasted muscle fibre, but may represent an endothelial cell or perhaps a lymphocyte. The margin of these very advanced areas is often extremely well defined and the general contour rounded or oval. In other cases this delimitation is not attained, and a similar appearance to that just described is seen gradually fading into the slighter degrees. In one fibroid, therefore, it may be possible to trace every gradation of this very chronic process, one area showing early streaky change, another a more pronounced hyaline thickening with implication of the intervening muscle bundles, and still another the almost structureless firm mass beyond which, as I hope to show, the process *per se* does not go.

The earlier stages are by far the commoner. In about 5 per cent. only of fibroids have I seen these circumscribed areas.

In no cases have I observed hyaline change affecting muscle fibres, and I cannot believe that it occurs. Although Kelly and Cullen[6] figure a section in which they assert it to be present, the most careful search with suitably differentiating stains, such as picro-fuchsin and picro-nigrosin, has never shown muscle tissue taking any but an absolutely passive part in the process.

Staining Reactions. With eosin hyaline areas stain moderately well at all stages.

With picro-fuchsin the streaky forms, *i.e.*, the earlier degrees, stain well with the fuchsin, and appear as a definite pink. As the process advances less and less fuchsin is retained till, in the massive forms, picric acid staining alone remains, and the affected areas stand out a distinct yellow. This last point is of especial interest in that it brings the degeneration into line with hyaline degeneration as occurring elsewhere. (Beattie and Dickson).[7]

Hyaline degeneration, furthermore, is invariably negative to iodine and to Weigert's fibrin stain.

Sudan III. nearly always demonstrates the presence of fatty acids, but as a rule scarcely more in the hyaline areas than in the fibroid as a whole. Often the fatty change is much *less* marked than in the surrounding fibroid, and in some cases is practically absent. Although in a few instances distinctly more fatty deposit is present in the hyaline areas than in the neighbourhood, yet, generally speaking, it can not be said that the two processes go hand in hand. When present, the fatty globules are found as irregular streaks throughout, and especially in and around the walls of the vessels.

Vessels. In general, the appearances presented are those of senile vessels. They show the sclerotic hyaline changes typical of such, either in the inner, outer or in advanced cases in all three coats with strangulation of the muscle fibres of the middle coat and a certain amount of fusing of the coats as a whole. The lumen is encroached upon, and in a considerable number of the smaller vessels the endothelium is moniliform, the cells sometimes standing almost perpendicularly to the lumen. This latter, it may be, is a post mortem retractive change, as Eden[8] has suggested with regard to a similar appearance in sclerosed placental vessels, but in any case it can only be a sign of altered elasticity.

These vascular changes vary in intensity *pari passu* with the degeneration of the fibroid.

As noted above, fatty changes are usually found in the vessel walls.

In a small proportion of cases the degeneration apparently commences directly around the arterioles, the hyaline vessel wall merging into the surrounding tissue. The endothelium of the vessel implicated seems in such cases to persist much longer than in the

more ordinary forms of the condition. This peculiarity has also been noted by Kelly and Cullen.[6] It may, however, be due simply to the larger size of vessel usually affected. The appearance under a low power of such a fibroid is highly characteristic, yellow rounded areas with little nuclear staining and a central canal studding the field.

In the great majority of cases, however, no such intimate vascular association is obvious; but the rounded or oval areas are of course highly suggestive. I have not seen any hyaline areas definitely wedge-shaped at the margin of a fibroid, but then the degeneration is never very advanced towards the periphery.

One case alone, where hyaline degeneration was the sole change in the fibroid, showed thrombosis, and this was in a uterus with a submucous hyaline fibroid complicated by carcinoma of the endometrium. Only one or two rather small vessels showed the fibrin network.

Cyst Formation in Association with Hyaline Degeneration.

Marked hyaline degeneration and œdema frequently co-exist in a fibroid. Cullen describes the boggy fibroid simulating pregnancy as being usually associated with hyaline degeneration, and further describes the thinning out of the hyaline material into clear straw-coloured fluid with spaces traversed by capillaries. Again, he says that "œdematous cystic areas in a fibroid are the result of a marked hyaline transformation with subsequent liquefaction." That this is the usual sequence I have strong reason to doubt. On one hand, a fibroid may be extremely œdematous, either of the locular variety or of the so-called myxomatous type, and yet show very little hyaline change—merely the usual irregular streaks; on the other hand, a fibroid equally œdematous may show very extensive hyaline change indeed, usually best marked around the spaces, and especially the larger ones. I do not consider that the thin fluid cavities in fibroids are ever directly the result of solution or "thinning out" of the hyaline material. For, in the first place, the vascularity occasionally found within the hyaline borders of the cavity is quite against the cavity having originated within a hyaline area; and, secondly, the experiments I am about to describe indicate the probability of the extensive hyaline change having followed the œdematous degeneration. It is, however, possible that hyaline thickening by obstructing the lymphatics may lead to some œdematous infiltration.

Again, fibroids almost completely hyaline are very commonly without a trace of œdema.

Apart from this, however, breaking down does occur in the centre of the larger masses of hyaline degeneration. This breaking down is of a fatty nature, and appears as a brownish or yellowish semi-fluid mass, often containing cholesterin crystals, in an irregular

cavity. The variability in amount of the fatty change in hyaline areas as a whole would lead one to infer that the two processes are not directly dependent, but rather co-existent. Just as in vessels so in these tumours, the fatty degeneration exists along with, and not either as a cause or a result of, the hyaline transformation.

Pathogeny.

The firm consistence of hyaline areas combined with practically complete absence of nuclear staining led me to study the action of blood serum on pieces of excised fibroids.

Longcope[9] has shown its marked power of inhibiting softening and plasmolysis of tissue in the case of exsanguinated dogs' liver and kidney immersed in sterilized homologous or heterologous (horse; human) serum. The process is one independent of the fresh element in serum as heating to 65°C. for 50 minutes (which destroys all complement and amboceptor) does not impair this power; it is rapidly lost on diluting the serum; it is not due to the neutralization of the acids of autolysis, as neutralized serum is still active; but evidently resides in the albuminous fraction,—egg-white diluted with an equal quantity of salt solution having a well-marked preventative power.

Cubes of liver ½–1 cm. in diameter placed in normal saline and incubated at 36·5°C. become soft after 12—24 hours and deposit a sediment; no nuclear staining is visible after 12—18 hours; and after 2–3 weeks only a friable shrunken mass remains, buried in a copious sediment.

Similar pieces in serum show a firm zone round the margin after 24 hours; in from 8—14 days the whole thickness is firm and pale, and by 2–3 months the consistence is distinctly rubbery; nuclear staining remains for 43—68 hours and occasionally longer.

In the following experiments pieces of fibroids fresh from operation were cut in the shape of oblongs about 1 by 1 by 3 cm., with all precautions for maintaining sterility. These oblongs, which were taken from near the surface, were cut in three, each central portion being sectioned as a control against the presence of hyaline change in the area chosen. The other pieces were placed in sterile tubes containing blood serum and saline (0·85 per cent.) solution respectively. The tubes were sealed with paraffin wax and incubated at 36·5°C. At first 5 per cent. of toluol was added to dispose of any idea that the serum was furnishing nourishment to living cells; but this precaution was soon found to be quite unnecessary and was given up.

To begin with, human serum was employed, but the inconvenience of obtaining this in sufficient quantity led to the substitution for it of stale normal horse serum which is neither hæmolytic nor cytolytic to human cells and only occasionally slightly agglutinative. The results obtained with both were identical.

Pieces were removed from time to time up to eight months in several cases, and after sterility had been again confirmed were placed in formalin fixative and sectioned by freezing and paraffin microtomes.

In considering the results, two points must be borne in mind: firstly, that the tissue already contained some serum, and therefore the pieces in saline were not under absolutely serum-free conditions; secondly, that a fibroid is incomparably more difficult to penetrate than such a soft structure as liver. As a result of this toughness, it was found that fibroids retained their shape moderately well for months in saline, although uterine wall (in nature more porous) was invariably reduced to a brown sediment within two months, and placenta in a rather shorter time.

Although retaining its shape fairly well, the fibroid tissue in saline presented certain quite definite features distinguishing it from the tissue in serum. The consistence of pieces removed after two or three months was pulpy, and became increasingly so as a whitish sediment slowly developed. By the end of six or eight months the tissue was exceedingly soft, but still, although shrunken, retained roughly the original outline. Microscopically, nuclear staining was found to disappear much earlier than in the case of the same tissue in serum; occasionally a little of the hyaline change to be described as occurring in the latter was seen after a week or two, but this later on disappeared, and was in all likelihood due to the serum or lymph present in the tissue to begin with. As time went on the appearance became more and more porous till, by the end of a few months, one could readily detect in sections, even with the naked eye, a loose network of wavy fibres. (Fig. 4.)

The staining affinities for picro-fuchsin were constant. The longer the tissue remained in saline the better was fuchsin taken up. Sections after four months stained a red colour without a trace of picric acid colouration.

Fibroid tissue in serum, on the other hand, behaved quite differently. A typical instance—one of many—may be given in detail:—

19th Nov., 1908: cubes of fibroid placed in serum at 36·5°C.; from a patient, æt. 42; tumour 5 cm. in diameter, interstitial in the anterior wall; control showed a typical undegenerated fibroid. (Fig. 1.)

25th Nov., 1908: firm and pale; connective-tissue:—nuclei have disappeared, distinct swelling of fibres, fuchsin moderately well taken up; muscle fibres:—somewhat shrivelled, nuclei stain sharply. (Fig. 2.)

1st Dec., 1908: firm and pale; connective-tissue:—general homogeneous appearance with fusion and a lack of differentiation

Fig. 1. Fibroid as removed at operation.

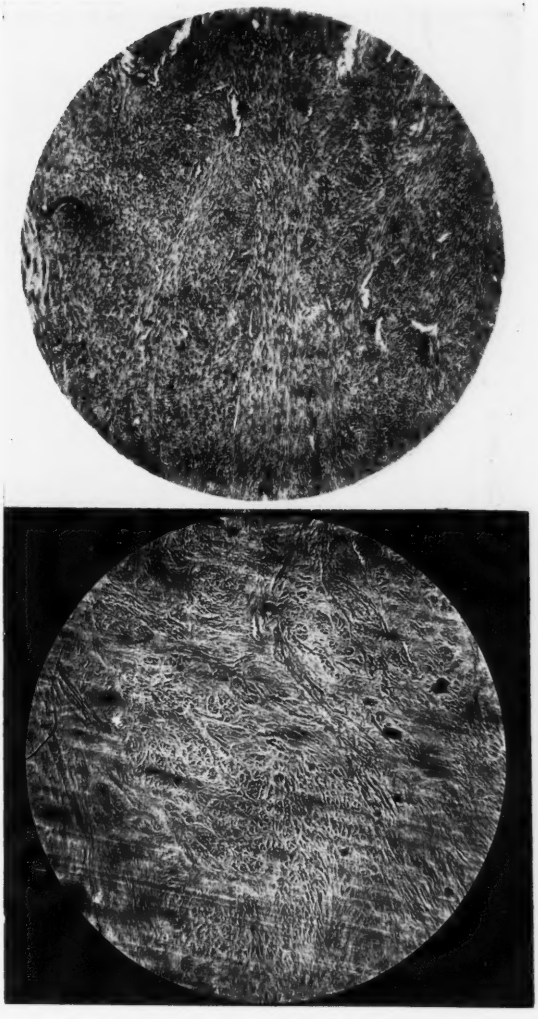

Fig. 2. The same fibroid after six days in normal horse serum at 37°Cent.

Fig. 3. The same fibroid after twelve days. (It was found impossible to photograph the later stages of the process as the tissue becomes completely homogeneous and hyaline.)

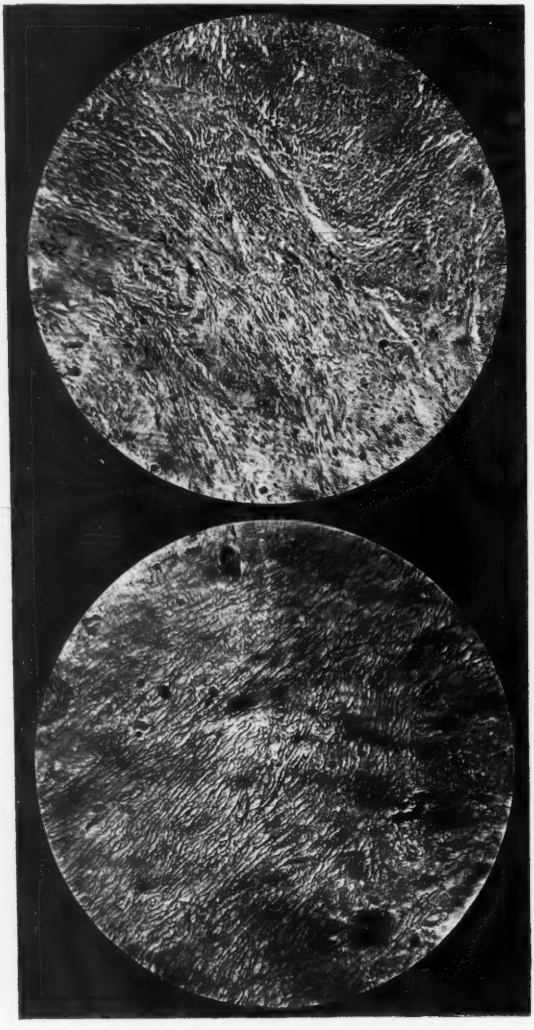

Fig. 4. The same fibroid after eight months in saline solution.

of the fibres, coloured by fuchsin; muscle:—scattered nuclei visible, especially towards the margins. (Fig. 3.)

15th Feb., 1909: firm and pale, very homogeneous, no nuclear staining visible, both fuchsin and picric acid taken up, but especially the former.

17th April, 1909: firm and pale, absolutely homogeneous; sections stain yellow with picric acid, no trace of fuchsin staining.

19th June, 1909: tissue very firm and homogeneous; stains a bright canary yellow; no shrinking has occurred.

This sequence occurred in each of the eight undegenerated fibroids investigated, although the time taken to develop varied. Nuclear staining was detected as late as 17 days after incubation, but as a rule disappeared within 10—12 days. Distinct hyaline change was visible after 6—18 days.

Fibroids in which the control showed that hyaline change was already present were more rapidly affected than others; while, strange to say, permeable structures such as uterine wall developed it very slowly, and only after all nuclear staining had disappeared. In every case the absorption of picric acid to the exclusion of fuchsin was apparent.

Nothing could be more marked than the contrast presented after a few months by sections of the tissue from serum and from salt: the one bright yellow and homogeneous, the other a shrunken, pink, stringy network. It will be noted at once that these appearances are identical with those occurring naturally in fibroids and in vessel walls.

Negative results with iodine and Weigert's fibrin stain are confirmatory of the essential similarity between the experimental condition and the natural. Sections stained with Sudan III. were also negative.

Some further interesting points were brought out with regard to œdematous fibroids. It may be asked: Why do these not show in every instance the most marked development of hyaline change? At first thought it would appear that the tissues in such cases are under precisely the same conditions as in these experiments *in vitro*. There are, however, the following points of difference:—

1. The fact that hyaline change is less rapidly produced in a permeable structure like uterine wall, and, in the case of fibroids, is usually most marked in the centre, *i.e.*, furthest from the blood supply, would indicate a limitation of the conditions under which the degeneration is liable to occur. It would appear that the most favourable environment is one where the serum is not present in excess, and can only slowly infiltrate the tissues as a more or less stale fluid. An attempt was made to determine whether only stale serum possesses this property. Very small pieces of fibroid were

placed in human serum which was daily replaced by a fresh supply, but hyaline change appeared as usual.

2. The fluid in œdematous fibroids is not the same as blood plasma, but corresponds rather to a dilution. I have found that the percentage of albumen is greater and the clot firmer in the larger loculi where the nutritional changes in the vessels are probably more advanced. In the smaller spaces the fluid more often remains unclotted and contains less albumen.

As opportunity occurred small pieces of the same fibroid were incubated with each of these (stale) fluids, and it was found that the more highly concentrated specimen had a much greater power of converting the connective-tissue into hyaline material.

Further experiments consisted in incubating sterile necrobiosed fibroids with serum. Three specimens were investigated, and the point of most note was the preservation of the form and consistence. That stagnant blood serum in such fibroids *does* exert some action is, I think, evidenced not alone by the consistence but also by the pronounced way in which they absorb picric acid. The more necrobiosed a fibroid the yellower it stains. Experimentally, pieces of necrobiosed fibroid in serum continue to show this colour, but similar pieces in saline within a short time tend to lose this property and stain with fuchsin instead, as in the case of undegenerated fibroids.

Conclusions.

These results have a general bearing, but as regards fibroids the conclusions to be drawn are clear.

1. Hyaline change is a degeneration and not an infiltration.

2. It affects the connective-tissue only—changes in the muscle fibre resulting passively from strangulation. There is no *overgrowth* of the connective-tissue, but a swelling of that already present. It follows on a gradual but serious diminution of nutriment, either focal or general, and the affected tissues are undergoing a process of embalming in more or less stale fluid. This diminution is not the result of any widespread thrombosis, but is due to the sclerotic condition of the vessels, the thickening of these in turn being probably the result of a similar process in the vessel wall. On this point I am at present engaged.

3. Nuclear staining is no absolute criterion of the vitality of a fibroid. Parenthetically I might mention that this fixative action of serum has also to be borne in mind in cases of retention of dead products of conception. Placental tissue placed in serum showed areas of nuclear staining for as long as two weeks.

4. The hyaline layer lining clear fluid spaces in fibroids is secondary to the development of the cystic degeneration, and is in

no way productive of the fluid by liquefying. There is of course the possibility that the hyaline thickening may occasionally obstruct veins and lymphatics and so produce a vicious circle.

5. Necrobiosed fibroids show evidence of this same embalming process in their consistency and staining reactions.

6. Fatty degeneration in a hyaline fibroid is merely co-existent—both processes being related to diminished circulation.

I am obliged to Dr. Gemmell and Dr. Wallace for the greater part of the material examined.

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SELECT CLINICAL REPORTS.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class).

I.

Unilateral Hæmatometra of Long Standing Forming a Large Abdominal Cyst.

By G. Bellingham Smith, F.R.C.S.,
Obstetric Surgeon, Guy's Hospital.

The patient, who was aged 41, was admitted to Guy's Hospital November 6, 1906, on account of an abdominal tumour with acute pain.

The *history* obtainable at the time was very scanty. She had been married for 15 months, and in February, 1906, was said to have had a miscarriage. She had been ill for rather more than a week before admission, and the tumour in the abdomen had been discovered for the first time during this illness. The diagnosis made before admission was one of ovarian tumour with twisted pedicle.

On admission, the patient looked ill, had a temperature of 100·2°, and complained of abdominal pain. The abdomen was held rigid, and was tender on palpation. A tumour, which was elastic and yielded fluctuation, occupied the lower half of the abdomen, reaching to a little above the umbilicus. On vaginal examination the tumour bulged low down in Douglas's pouch. It presented no mobility, either on abdominal or bimanual examination. She was unable to pass her water. I hesitated about confirming the diagnosis of ovarian cyst with twisted pedicle owing to the shape and fixity of the tumour. It bulged down into the pelvis like a broad ligament cyst or an encysted peritoneal collection of fluid. The history obtainable at that time was meagre, and I thought of the possibility of an extrauterine gestation, though I could feel nothing like a fœtus in the tumour. I operated the morning after admission.

Operation. An incision was made in the median line. The bladder was found to be drawn high up and to contain urine. This was withdrawn by catheter, and the bladder pushed down out of the way. Filling the lower half of the abdomen was a large cyst, with a wall discoloured by blood, and similar to that seen in the case of an

ovarian cyst with twisted pedicle and extravasation of blood into its interior. The cyst had no pedicle, and was seated largely in the cellular tissue, being covered by peritoneum on its upper and anterior surfaces only.

In its growth it had expanded the meso-sigmoid, so that the sigmoid flexure was applied tightly to the front of the cyst. I thought that I had to deal with a broad ligament cyst. A trochar and cannula were inserted and the contents, which consisted of dark altered blood, were withdrawn. The wall of the cyst was thick and did not collapse. The opening into it was enlarged and the interior washed out with normal saline solution. It was then found to be a unilocular cyst with thick walls. The peritoneum could not be peeled off it, and removal of the tumour appeared to be impossible without resection of the sigmoid flexure. The uterus had previously been seen low down and closely applied to the anterior surface. Further examination now shewed that what was taken to be the body of the uterus was one horn only of a bicornute uterus, and from this proceeded the right Fallopian tube which was stretched out over the surface of the cyst. The cervix was flattened and broad, the right half continuous with the right cornu, the left half spreading out fanwise over the surface of the cyst. No signs of left Fallopian tube could be seen. There seemed to be no doubt that the cyst had resulted from the dilatation of the left horn of a bicornute uterus, and it is possible that the left Fallopian tube shared in the distension. It appeared that much difficulty would attend the removal of the tumour which was found embedded in the cellular tissue, and that resection of bowel would be required in dealing with the loop of sigmoid that was drawn over its surface. From the nature of the tumour it appeared probable that the most satisfactory way of dealing with it would be by drainage. The abdominal wound being closed temporarily the patient was placed in the lithotomy position, and an opening was made through the posterior fornix into the interior of the cyst and a gauze plug inserted. The vaginal portion of the cervix was small and no communication was found between the canal and the distended horn.

The abdominal opening into the cyst was then carefully sutured and the abdominal wound closed.

Subsequent course. The temperature fell after the operation from 100·6° to 97°, but rose again quickly, and the day following had reached 101°. This temperature persisted till December 6th, the daily variations being as a rule from 99° to 101°. The opening into the vagina was enlarged and the sac washed out on two occasions without affecting appreciably the temperature. The tumour diminished gradually in size, and the discharge had ceased before the patient left the hospital on December 30th.

I saw her again on January 27th, 1907. I was surprised to find

that all trace of the cyst had disappeared. The uterus was freely movable and there was no thickening to be felt around it. As the cyst contracted it had settled down on to the right horn and the only thing that could be felt was a uterus that was rather broader than usual. The drainage opening was represented by a depression which appeared to be on the cervix itself.

On December 6th of the same year I found the condition practically unchanged. The depression due to the drainage opening was no longer obvious on vaginal examination. The cervix presented nothing unusual except that it was a little thicker than the normal. The body remained broader than usual and a trifle uneven. The periods had recurred, but latterly had been a little irregular, the last one being overdue. There had been no pain except a little at the periods.

After her recovery the patient kindly supplied me with the following *history* in answer to certain questions of mine:—

(1) "The periods were always free from pain, but about two years before the operation they began to come more frequently—once in three weeks, or sometimes more often than that. The stoutness of the abdomen was an old trouble. I can remember my mother complaining about it before I was twenty years of age, but of course it was only at the last that it became so noticeable.

(2) "I was only two months gone when I thought I had a slight miscarriage (in February, 1906).

(3) "The stoutness of the abdomen certainly increased more rapidly from February, 1906, to November last. I think I had the tumour for a good many years, and for this reason: For many years—quite fifteen—I suffered from great weakness of the body. The back passage would not keep in place. If I stood for a little while or walked a short distance the rectum used to drop down and it was necessary to push it back or it would bleed profusely. I used to lose large quantities of blood from this cause." She goes on to say that since the operation the bowel does not come down, and she attributes the trouble to piles due to the pressure of the tumour.

(4) "I sought medical advice on November 1st, 1906, because I had acute pain in the abdomen and great difficulty in passing urine, also a high temperature."

(5) And, lastly, she has been regular since the operation.

I think no doubt can exist as to the nature of the swelling. The one horn and Fallopian tube being present and the spreading out of the left half of the cervix or perhaps lower part of body on to the cyst wall point to it as being a dilated left horn with possibly dilatation of the corresponding Fallopian tube.

The most interesting feature is the age at which it was first detected. The patient was 41 when admitted to hospital and the swelling had been discovered only within the week previous to

admission. She had, however, noticed herself getting stouter since the February preceding, when she appears to have had a miscarriage. We have, further, her statement that as a young woman of twenty her mother mentioned the stoutness of her abdomen. It does not appear that between twenty and forty years of age there was any very appreciable increase in size. It is difficult to know what stress to lay on the different stages in her history, but it seems reasonable to assume that the distension of the horn commenced with menstruation and became obvious about the age of twenty. We must assume then that the amount subsequently poured out was very small in amount, or that owing to pressure the endometrium was so altered that secretion ceased. I regret that I did not remove part of the wall of the cyst for examination. It was only after the miscarriage in February that she began to grow stouter. This at first raised the question of an extrauterine or cornual pregnancy. The history of miscarriage was not conclusive and what she passed might have been a decidua. There was, however, present no sign of fœtus or products of conception. Moreover, the nature of the swelling pointed to slow distension. The cyst was largely extraperitoneal, the distended cornu having pushed up the peritoneum, obliterating both broad ligaments and spreading out the meso-sigmoid.

Why the swelling increased after the February miscarriage is not clear, unless the pregnancy, by causing congestion, brought about fresh hæmorrhage into the interior.

The pain and rise of temperature of the last week was no doubt due to infection of the contents, the temperature persisting in spite of the drainage and washing out for some weeks.

An interesting feature is the subsequent return of the parts to a condition but little distinguishable from the normal. The sac contracted with great rapidity on to the uterus, and two months later nothing was to be felt of the inflamed thick-walled cyst outside the uterus, the horn having again returned to something like its original condition. All that was felt was a broad, somewhat uneven uterus, such as one might expect to find in a bicornute uterus. Although menstruation persisted, there was no evidence in eleven months' time that any recurrence was taking place.

II.

Inguinal Hernia of the Uterus.

By Henry Betham Robinson, M.S. (Lond.), F.R.C.S.,

Surgeon to St. Thomas's Hospital, London.

In Vol. xv, p. 207, of this Journal appeared a review of a series of cases of this form of hernia which had been recently published by Cranwell in the *Revue de Gynécologie et de Chirurgie Abdominale*, October, 1908.

A very good example of this hernia was operated on by me in St. Thomas's Hospital in April, 1908, which I now give in detail.

The patient, aged 20, was a robust-looking girl of good physique and generally well-developed. The feminine type was distinctive: the hair of the head was abundant and long, the breasts firm and large, and the pubic hair normal in quantity and limited to the mons. She had never menstruated, but periodically she had great pain on the right side, and then she had noticed that her hernia was larger. When she was lying down the hernia showed only a little fulness over the external ring, but when she was up and about she said it became much larger. There was some fulness to be felt behind the abdominal wall about the site of the internal ring on the right side which seemed to pass down into the pelvis, and she was extremely tender on pressure here.

Further examination showed that the external genitals were normal: the urethral orifice was rather large, and behind at the site of the vagina there was only a dimple with the openings of Bartholin's gland on each side: the labia majora had no transverse rugæ, and nothing was to be felt in them: the clitoris was not "penile" in form. With the co-operation of my colleague, Dr. Fairbairn, we determined that, on passing a sound into the bladder and examining by rectum, no uterus or vagina could be made out. Bimanually, the lump on the right side was considered to be an ovary, but no similar body was felt on the left side.

At the operation the usual incision was made over the inguinal canal, and the end of a hernial sac exposed coming out of the external ring. On opening up the canal to the internal ring the sac of the hernia was found to be very thickened at the inner edge of the ring, and on opening the sac and passing the finger into the abdomen

this thickening was felt to be continued as a solid rod of tissue down the inner side of the pelvis and to end in a blunt extremity below, quite free from, and to the right side of, the bladder. On drawing the sac wall up it was made out that this thickening was a small rudimentary uterus, its area being not larger than a two shilling piece, and from this, passing downwards between the peritoneum and the pelvic wall, was the solid rod, about the thickness of a lead pencil, which represented the vagina and had vessels on each side of it. On the left side of the rudimentary uterus there was a little prolongation at the upper angle, which ended blindly and seemed to be a left cornu, but the broad ligament and its associated structures were undeveloped. On the right side a very well-formed ovary with Graafian follicles could be brought up into the wound; the broad ligament was small, and there was no extension from the uterus along its upper border representing the Fallopian tube: on the outer side of the ovary was the fimbriated end of the tube with some small cysts. The solid rod representing the vagina was cut through below in front of the peritoneum after ligature, and then the uterus with the right broad ligament, including the ovary, was removed. The hole in the peritoneum so created was closed by a purse-string suture, and the structures of the abdominal wall re-sutured.

The patient made an uninterrupted recovery.

Commenting on the above case, we see that it illustrates many of the important points brought out in Cranwell's analysis.

The hernia was undoubtedly of congenital origin with the uterus placed in relation with the inner margin of the ring and with the upper part of the inner wall of the canal. That this position in the neighbourhood of the internal ring had always been the site of the uterus seems certain, for the peritoneal sac was not large, and the uterus had thus not been dragged into its mouth by traction on the peritoneum: the position of the rudimentary cornu also supports this view, and from these facts then we may regard the position of the uterus as "ectopic."

In the sac was the fimbriated end of the tube, but the ovary, which was close behind the internal ring, was of such a size as to suggest that it might never have been down into the canal. Although no omentum was seen this probably accounted for the varying size of the hernia: why the hernia got larger at the menstrual periods, if it did, is not clear. The hernia, as seen in the hospital, was never of any size.

Except for the small projection at the left upper angle of the uterus which suggested a left cornu, and probably was not such, it is reasonable to consider that the internal genitals had only developed on the right side. Whether those on the left side were entirely

undeveloped cannot be stated with certainty, except so far that examination gave no evidence of a genital gland.

As in other cases recorded, the internal genitalia showed more than a single developmental error. The right Fallopian tube was only represented by the fimbriated end and about one inch adjacent, which ended in a bulb: between this and the uterus there was no sign of any tube. The genital gland seemed to be only an ovary (though it was not submitted to microscopical examination) and showed a recently ruptured Graafian follicle.

III.

A Case of Accidental Hæmorrhage and Chronic Uræmia in which the Bacillus Proteus was Found.

A. Stookes, *Hon. Surgeon to Liverpool University Hospital, and Liverpool Samaritan Hospital for Women;* and E. E. Glynn, *Assistant Professor of Pathology, Liverpool University, and Pathologist to Liverpool Royal Infirmary.*

A woman, 28 years of age, who had had five children and four miscarriages, was admitted to the Maternity Hospital on May 8th, 1908.

The woman had been living a hard life; her husband was alcoholic, and had been out of work all the winter. She herself had gone out charing. She was six and a half months pregnant, her last child being eleven months old. During this pregnancy she had complained of headache.

On the 30th of April she began to lose blood per vaginam, and this continued until she was seen on May 8th by the Obstetric Assistant, Dr. Hendry, who found she had been losing a large amount of blood and that the loss was still going one; she was complaining of abdominal pain. She was blanched and restless, with a small pulse of from 110 to 120 per minute. She had a tense, tender abdominal swelling about the size of the uterus at the eighth month. The os was dilated to about two inches in diameter, the membranes intact and a head presenting.

She was sent into the Maternity Hospital, where it was found that the os was fully dilated; the membranes were ruptured, and the child was born spontaneously with placenta and clot. The placenta weighed 14 oz. and clot 27 oz.

The uterus contracted well after delivery and there was no post partum hæmorrhage.

I should here point out that there had been very little vaginal examination and no interference beyond the rupture of the membranes. The patient's condition made us very anxious from the first, on account of her extreme bloodlessness, feeble pulse and the suppression of urine which continued, until she died. In the first twenty-four hours she passed only two drachms of urine, although a catheter was twice used. The first specimen saved was thought to have had some fæcal contamination, being passed when the bowels were moved. It was found to be alkaline, its specific gravity was 1014, and a fæcal odour was noticed. It contained a slight amount

of albumen; no blood was found. Urea was estimated at 1 per cent.; next day 4 ounces was passed, and on the fourth day 4 ounces. This was examined. It contained a deposit of mucus and phosphates and had no abnormal smell. A small quantity of albumen was found. Urea estimated to be 1·5 per cent. On the seventh day the same characters were observed.

The further examination was difficult as the patient had involuntary evacuations.

No bacteriological examination was made.

General œdema began in the face on the second day, and increased as time went on. It was impossible to make out the condition of the uterus on account of the swelling and tenderness of the abdomen.

On the fourth day she had syncopal attacks with twitching of the face and limbs, and she complained of pain in the abdomen. After free purgation she seemed, on the fifth, sixth and seventh days, to be improving, but the twitching, cyanosis and mental impairment increased, with vomiting and involuntary evacuations of the bowels and bladder, until she died comatose on May 19th, the eleventh day after admission.

The temperature record did not help us much; for the first three days it was above normal, the highest point being 100·6°F. twenty-four hours after admission. After the fifth day it was, for the most part, normal or subnormal.

To my mind, the case seemed one where a half-starved woman, with, possibly, chronic renal disease, had a very severe and continued hæmorrhage, and as the result of the insufficiency of the blood-pressure the kidneys were unable to work. I thought the case one of chronic uræmia rather than one of septic infection.

The post mortem was made by Dr. Emrys Roberts. He found a small quantity of clear fluid in the abdomen. On opening the uterus the cervix and body were covered with greenish chocolate-coloured, sloughing material, suggesting sepsis. There were laminated thrombi in the uterine veins.

The kidneys were enlarged, weighing 7½ ozs. each, and presented a most unusual appearance, for fully two-thirds of their cortex was the seat of numerous small anæmic infarctions, surrounded by zones of congestion. The medulla of the kidneys was only slightly affected.

The other organs were normal, except the spleen, which weighed 10 ozs.

Cultures were made from the kidneys and spleen by Dr. Roberts, who handed them to Dr. Ernest Glynn for identification. He isolated a slender, non-spore-bearing, actively motile, gram-negative, non-capsulated bacillus, which clotted and eventually peptonized milk, rapidly liquefied gelatine, and rendered sterile urine ammoniacal in 24 hours. These and the other cultural reactions

indicated that it was the B. proteus vulgaris,—an organism which sometimes infects the genito-urinary tract and produces ammoniacal urine.

On microscopical examination, the kidneys showed the usual appearances of anæmic infarction with the addition of patches of round-celled infiltration. Many of the tubules, especially secreting tubules, were completely plugged with epithelial debris and enormous masses of slender, gram-negative bacilli varying in length from 4 to 30 μ. These bacilli were most numerous in the necrotic areas. The condition of the blood in the vessels unfortunately could not be ascertained, owing to hæmolysis of the red corpuscles, which may have been the result of post mortem decomposition or of improper fixation.

Microscopical examination of the uterus showed acute inflammation with formation of sloughs and numerous clusters of staphylococci, which cultures demonstrated to be staphylococcus aureus.

Sections of the liver and spleen revealed nothing of importance.

The bacteriological and microscopical examinations demonstrate therefore that the uterus was infected with staphylococcus aureus, and the kidneys with the bacillus proteus vulgaris. The fact that the latter organism was also isolated from the spleen indicates in all probability a terminal septicæmia.

The same organism was undoubtedly, directly or indirectly, the cause of the renal infarcts.

Clinically, it is most important to note (1) that the patient was suffering from partial suppression of urine when admitted into hospital, and that the condition continued until she died of uræmia; (2) that the urine was alkaline and had a foul odour.

It is unfortunate that neither the urine nor blood were examined during life, but, apart from this, there is no doubt that the renal condition was due to the bacillus proteus vulgaris.

It appears highly probable, therefore, that the accidental hæmorrhage was secondary to the bacterial infection of the kidneys.

Bacillus proteus vulgaris frequently produces cystitis and ammoniacal urine, and occasionally attacks the kidneys or is responsible for puerperal infection.

We thought this case worth recording, because B. proteus is one of the lesser known pathogenic bacteria, and its existence therefore is in danger of being overlooked.

CRITICAL REVIEW.

Recent Work on the Etiology of Eclampsia.

By Eardley Holland, M.D., F.R.C.S.

Part III. *(Continued).*

Opitz's paper was the first of a long series of criticisms of the "specific placental theory" of eclampsia. Kawasoye and Freund (1904) appear to be the only subsequent workers who lend serious support to the precipitin reaction and to syncytiolysis. Kawasoye found the precipitin reaction positive with the serum of pregnant women, with retro-placental blood serum and with fœtal serum, but negative with the serum of the non-pregnant and of males; he further demonstrated that if pieces of placenta were left in a specific placental serum, cytolysis occurred in Langhans' cells, but not in the syncytium. His most surprising result was that the albuminous urine of pregnant women produced a specific serum when injected into rabbits, though the action of this serum was weaker and less specific than that of a specific placental serum. Freund found that, in the majority of cases, the urine of pregnant women gave a precipitin reaction with a specific serum.

Subsequent to this, with the exception of retorts from the various champions of the theory to its critics, the whole course of experimental work has been of an adverse nature. Wormser (1904) utterly failed to confirm the results obtained by Veit, Ascoli, Weichardt and Liepmann. In general terms, he criticizes the particular theories of the first-named (see p. 335), thus: (*a*) *Veit's theory.* If eclampsia is due to a direct poisoning with placental cells, it should be produced in every pregnant animal by the injection of placental cells of a corresponding species: this is not the case, for pregnant animals withstand the injections as well as non-pregnant females and males. (*b*) *Ascoli's theory.* If eclampsia is due to an excess of syncytiolysins, the serum of every eclamptic patient should cause cytolysis *in vitro* of fresh human placental cells, which is far from being the case. Further, Ascoli's theory is not supported by his experiments (see p. 334), for intravenous and subcutaneous injection of the serum he prepared was innocuous to animals, and it was only when the serum was injected subdurally that any effect comparable to eclampsia was produced. To draw conclusions from these experi-

ments is unjustifiable, for the serum was not sharply specific for syncytium,* and so delicate a structure as the brain would probably be affected by any variety of cytolytic serum: and, if the serum had such a special action on the brain as Ascoli asserted, why was there no such action on intravenous injection? (*c*) *Weichardt's theory.* Out of 9 experiments only 3 were successful: this in itself is sufficient to cast grave doubts in its correctness, in spite of Weichardt's plausible assumption that the natural immunity of the animals was responsible for the 6 negative cases.

Wormser, in his own experiments, adopted the following technique: the outer surface of the placenta was sterilized by burning alcohol, after which all the outer part was shaved off; the remainder was then minced, and finally passed through a graduated series of fine metal sieves: this finely divided residue was then washed repeatedly in sterile salt solution until it was, as far as possible, free from blood: lastly, it was diluted with salt solution until it was of such a consistence as could be injected through a needle whose diameter was 1 mm. This method was essentially the same as that used by Liepmann and condemned by Opitz. Wormser prepared the specific serum in the usual way. His results were:—(1) Syncytiolysis *in vitro*—always negative. (2) Repetition of Weichardt's experiments (see p. 334): 5 experiments—all negative. (3) Repetition of Ascoli's experiments: like this worker, Wormser obtained negative results from intravenous and subcutaneous injections, but the subdural injections resulted very differently, and constitute an excellent criticism of Ascoli's somewhat unreliable conclusions. One animal received 1 cc. of serum, and quickly died with tonic and clonic spasms; post mortem examination showed that the cerebral cortex had received severe injuries from the cannula. *This was the only animal that died.* Four others received doses varying from 0·25 to 0·5 c.cm.: the only effect was a few muscular twitchings in two. (4) Liepmann's precipitin reaction—always negative. Wormser and Labhardt, recognizing the possible objection that might be urged against their method of preparing the placental emulsion, performed another series of experiments, in which the placenta was transfused with salt solution to free it from blood (this was the method advocated by Opitz). Their results were the same as before; syncytiolysis *in vitro* was always negative. Weichardt's experiments were tried ten times, with negative results, and in Liepmann's precipitin reaction, no difference could be detected between the action of specific and normal sera.

* These sera were prepared by the injection into animals of emulsions of placenta, the emulsions naturally containing not only syncytium, but also connective-tissue and small amounts of maternal and fœtal blood. Regarding cytolytic sera, see Emery, "Immunity and Specific Therapy," 1909, who says:—"They are not sharply specific, all being hæmolytic, and some attacking several cells, as well as those which have been used as their antigens."

Pollak (1904) and Aronson (1905) both failed to detect syncytiolysis and precipitation with specific sera, though the latter had used a big series of animals, including rabbits, goats and a horse.

Frank (1907) has published the most recent work, especially valuable because he has been able to take advantage of more recently acquired knowledge and improved technique. Frank planned his work thus: (1) To investigate Halban's placental theory;* thus, rabbits were repeatedly injected with fresh placenta of pregnant rabbits removed by operation just before term. These animals were used: (*a*) anatomically to study the uterus, ovaries and tubes; (*b*) biologically to test the serum for precipitins. (2) To control the work performed by Liepmann, three groups of rabbits, each group composed of two animals, a male and a female, were repeatedly injected with the following materials: (*a*) a solution of nucleoproteid from the human placenta; this was tested for precipitins and for the deflection of complement by the method of Neisser and Sachs; (*b*) a maceration of human placenta made blood-free by washing in plain running water; it was tested by the same methods; (*c*) a maceration of human placenta made as bloodless as possible by washing with large quantities of normal saline solution: it was tested for precipitins, deflection, cytolysis, etc.

Frank employed two new methods not previously used by other workers on the subject. Placental nucleo-proteid was used because Beebe and Bierry and Pettit had shown that if the nucleo-proteid prepared from cells, instead of the cells themselves, was injected, a serum was obtained which was much more sharply specific and gave much less of a "general human reaction." The method of deflection of complement was used because it is regarded as even more delicate than the precipitin reaction: as an indicator, Frank used rabbits' serum made lytic to hen's corpuscles, by repeated injections of the washed corpuscles of hen's blood. Without entering into the details of his experiments his conclusions may be given at once:—

"The injection of rabbit's placenta into rabbits produces no isoprecipitins.

"The injection of human placental nucleo-proteid, prepared

* Though Halban's placental theory is germane to the present subject, it is of sufficient interest to deserve a passing notice here. The theory supposes that the placenta exerts a trophic or governing function during pregnancy, and is responsible for the hypertrophy and hyperæmia of the uterus and other pelvic organs, the decidual reaction and the activity of the breasts. After labour, when this influence is removed, the generative organs undergo rapid involution. The sole experimental confirmation is that of Lane-Claypon and Starling, who found that the injection of extracts of rabbits' embryos into rabbits produced hypertrophy and activity of the breasts. Frank could not detect the slightest difference between the uterus and ovaries of the injected and control animals: no decidual reaction, not even an increased vascularity, was found.

from placental tissue made nearly blood-free, does not produce an anti-serum.

"The injection into rabbits of human placental tissue rendered practically blood-free, fails to produce any specific reaction. This confirms the view that the serum reaction following the injection of cells into a foreign organism is largely due to the blood contained in the injected tissues.

"The injection into rabbits of the human placenta, made nearly blood-free, produces a weak "human reaction" which can be demonstrated by the reactions for precipitins, deflection of complement, agglutination and hæmolysis. *No specific placental reaction can be shown.* This is in strict accord with the view that cyto-toxins are not specific: that there is no morphological specificity.

"The anti-sera obtained showed no cytolytic action: therefore no specific syncytiolytic action could be demonstrated.

"The work dealing with Veit's ingenious hypothesis was complete and carried out by many methods, which would necessarily act as a check upon one another. As the results of all these experiments were in complete harmony, I feel justified in making a positive statement that *no experimental proof of a specific placental immune reaction can be demonstrated by our present biological methods.* Whether Veit's hypothesis, thus deprived of its biological proof, must in consequence be discarded, is a question which I do not consider myself competent to answer."

Such then is the account of the chief work that has been done on the specific placental theory of eclampsia, founded on Ehrlich's side-chain theory of immunity, and generally known, from its originator, as Veit's theory. Its inception was due to a single fact, the presence of free placental cells in the circulation of pregnant women. Brilliant as it is, the attempt to solve the problem of eclampsia on these lines has failed; for the theory has not withstood the test of more recent and more careful work. Labhardt, in an excellent paper, criticizes the theory on general and theoretical grounds, pointing out that any new theory of disease must fulfil these conditions: (1) it must be in agreement with the morbid anatomy, the pathology and the biology of the disease; (2) it must agree with clinical facts; (3) the condition produced experimentally in animals must be so closely allied to the disease as to be identical with it. This, he maintains, eclampsia does not do. Further, the foundation of the theory does not seem sound, for, since the trophoblast is the product of a maternal cell, it is not logical to consider it to be foreign to the mother in Ehrlich's sense, and so capable of producing antibodies and toxins. Labhardt would like to see the terms "syncytiolysin" and "syncytiotoxin" replaced by "choriolysin" and "choriotoxin": in the early months of pregnancy eclampsia is rare and the syncytium is abundant: in the later

months, eclampsia is common, and the syncytium is scanty, so it is unreasonable to suppose the syncytium to be solely responsible. Why, he asks, does not eclampsia occur in cases of extra-uterine pregnancy? for tubal abortion is analogous to the injection of syncytium into the peritoneal cavity!

Sufficient alone to cast grave doubts on the correctness of the theory are the diametrically opposite conclusions arrived at by different workers, working on practically the same lines.

(1) Syncytiolysis *in vitro*, by a specific placental serum.
Affirmed by Veit, Scholten, Weichardt and Opitz.
Denied by Liepmann, Wormser, Pollak, Aronsen and Frank.

(2) Specific precipitin reaction.
Affirmed by Liepmann, Kawasoye and Freund.
Denied by Opitz, Wormser, Labhardt, Weichardt and Frank.

(3) Weichardt's "syncytiotoxin" experiments: the total number of experiments published is 26:
Positive: Weichardt, 3.
Negative: Weichardt, 6; Wormser, 5; Wormser and Labhardt, 10; Pollak, 2.

(4) Action of syncytiolytic serum on animals. Intravenous and subcutaneous injections have always been negative, and Wormser has shown that the results obtained by Ascoli by subdural injections are worthless.

The obvious conclusion is that the theory is not supported by a sufficient amount of evidence to warrant its existence.

Apart from the "specific" action of placental elements in the blood, the direct action of the intravenous injection of placental extract into animals has received much attention.

Weichardt and Pilz (1906), in their paper, already referred to, experimented with filtered extract of placenta. In their first paper (1900) they claimed to obtain the endotoxins of placental cells by allowing syncytiolytic serum to act upon them. In the later paper they claimed to obtain endotoxins directly from placental cells by the mechanical action of grinding the placenta in a mortar; the crushed mass was passed through fine sieves, mixed with salt solution, and finally filtered through layers of gauze; the free endotoxins, they supposed, were in the filtrate. By using a known weight of placenta to a known volume of salt solution they prepared what they termed a "test-toxin," which was highly toxic to animals when injected intravenously in such small doses as 1–3 c.cms. The animals died, within a few minutes of the injection, from respiratory failure. Post mortem examination showed almost universal thrombosis, both in the heart and large vessels, and in the capillaries. With smaller doses there was no thrombosis, but the

animals still died from respiratory failure. They concluded that the extract contained two toxic elements—(1) acting on the respiratory centre, (2) causing coagulation of the blood.

Freund, as the result of a large number of experiments, confirmed this, and showed that placental extract was highly toxic in very small doses when injected intravenously. He attempted, without success, to separate the two toxic components, but by shaking the turbid extract with animal charcoal and centrifugalizing or by passing it through a Berkfeld filter, he obtained a clear solution, which was non-toxic. From this he concluded that the toxic elements in the extract were attached to the cell debris. He found that extracts of other glandular organs (liver, pancreas, kidney) produced a toxic effect analogous to that of placental extract, but in lesser degree, and points out that the cells of other organs do not normally attain freedom in the blood stream, like placental cells.

Mathes (1908) agreed that placental extract has a highly toxic action in causing intravascular coagulation, but found that the rate of injection has considerable influence. He prepared an extract by grinding the placenta in a mortar, pressing it in a Buchner's press, and using the juice so obtained after filtration. He performed the following experiments:—(1) A rabbit was injected slowly with 7 c.cm. of extract plus 28 c.cm. of salt solution, and lived. (2) Another was injected slowly with 10 c.cm. of undiluted extract, and lived. (3) Another was injected rapidly with 5 c.cm. of undiluted extract, and died at once. (4) Another was injected with 40 c.cm. of undiluted extract, the injection lasting 30 minutes; no bad effect was produced, and it was only after an additional 25 c.cm. had been injected under pressure that death occurred. Mathes explained his results by assuming that the extract must be concentrated to exert its full toxic action: if the extract, which possesses powerful coagulating properties, be injected rapidly it occupies the whole of the vascular area lying between the site of injection and the heart; but if it be injected more slowly it mingles with the blood stream and is diluted.

Lichtenstein denied these results *in toto*. From his own experiments he came to the conclusion that death from the intravenous injection of placental extract was due, not to any special toxic action, but to the contained cellular debris, which caused multiple emboli in the lungs of the animals, with consequent thrombosis. Lichtenstein's paper is an important one, and has been the centre of a lively discussion, which has been conducted in the German journals with a good deal of feeling. The nature of his experiments is as follows:—

He obtained an emulsion of placenta by first grinding it, and then passing it through a series of sieves of graduated fineness.

I. 2 c.cm. of emulsion, which had been passed through a very fine sieve, was injected into 11 animals: all died and showed widespread thrombosis throughout the body.

II. The emulsion was filtered through filter paper: 2 c.cm. was injected, and no animal showed any ill effect.

III. Animals were injected with emulsion filtered more finely still, with no effect.

IV. A suspension of argilla (a fine clay) was made, and was passed through a sieve of similar fineness to I. The animals injected with this all died, showing the same post mortem appearances as in Group I.

V. An argilla suspension filtered as in Group II. produced no effect on the animals.

VI. An argilla suspension filtered as in Group III. similarly produced no effect.

Lichtenstein, from these and other considerations, concluded that death, when it occurred, was not due to the action of toxins, but to the passage of fine cellular elements into the circulation, which produced, purely mechanically, multiple emboli, followed by thrombosis in the blood-vessels, and that Weichardt, Pilz and Freund were therefore wrong in their conclusions: it will be remembered that Freund inactivated placental extract by passing it through a Berkfeld filter, an observation which, if Lichtenstein is right, has an obvious explanation. Lichtenstein has gone too far, as subsequent work has shown, in denying altogether the toxicity of placental extract; but it cannot be denied that he was quite correct in pointing out the danger of drawing erroneous conclusions from the result of injecting extracts which contained free cellular elements.

Englemann and Slade (1909) prepared an extract by subjecting the placenta to a Buchner's press: the resultant juice was centrifugalized, pipetted off, and carefully filtered. From a large series of experiments, they agree with Weichardt and Freund, that the intravenous injection of 1–3 c.cm. of the extract is rapidly fatal to rabbits, and that, contrary to the experience of Mathes, the rate of injection had no influence: the chief effect was widespread intravascular coagulation. Having demonstrated the chief toxic action, these workers next attempted to settle whether this was the only toxic element in the extract, or whether there was, in addition, another special toxin, as former workers (Freund, Weichardt) had supposed. To neutralize the coagulation-effect they used substances which are known to hinder the coagulation of the blood. Peptone was used, but was soon given up, as the results obtained were very uncertain. Hirudin (leech extract) was much more suitable: it has no deleterious action, and no influence on the heart, blood-pressure or respiration. Fatal doses of placental extract, mixed with leech-

extract, were injected into 10 animals; only 2 died, and one of these from air-embolism. In 4 others the leech extract was injected just before the placental extract; only 1 died. So, out of 14 animals, only 2 died from the effects of placental extract, when measures were taken to prevent coagulation of the blood. Englemann and Slade draw the conclusion, which seems justifiable, that the only toxic action of placental extract is to cause intravascular coagulation, and that there is no need to suppose the existence of another special toxic element.

There is no doubt whatever that the intravenous injection of placental extract is fatal to animals, and that death is caused by a widespread intravascular coagulation. Weichardt and his contemporaries thought that this coagulation was due to a special toxin contained in the placenta. More recent work has shown, however, that the coagulation is caused by the nucleo-proteid contained in the extract. Nucleo-proteid, when injected intravenously in sufficient quantity into animals, causes coagulation of the blood and death; in fact, they exhibit the same symptoms and post mortem appearances as those injected with Weichardt's "test-toxin."

Acconci and Botavi prepared nucleo-proteid from the placenta, and found that on intravenous injection it caused death from coagulation of the blood: the same effect is produced, of course, by the injection of nucleo-proteid prepared from other organs.

Dryfuss (1908) thinks that the toxic action of placental extract is due entirely to nucleo-proteid. To prove this, he prepared a test-toxin similar to that of Weichardt, from which he removed the nucleo-proteid by precipitation. He then performed three sets of experiments: (1) the pure test-toxin was injected into an animal, which died with the usual symptoms; (2) the precipitated nucleo-proteid was mixed with salt solution and injected: the animal died as in (1); (3) an animal was injected with test-toxin from which the nucleo-proteid had been removed: no ill-effect resulted. The conclusion to be drawn from these experiments is that placental extract is toxic in virtue of its nucleo-proteid only. Another interesting fact, which also lent support to this, lay in the observation made by Halliburton and Brodie, that white animals are comparatively immune to nucleo-proteid. Dryfuss found that a white rabbit reacted much less to 6 c.cm. of the "test-toxin" than a black one did to 3 c.cm.

Savaré (1907) claims to have discovered a ferment in the placenta which has a powerful action in causing coagulation. He took a solution of fibrinogen, freed from globulin, and which, even when left standing for many days, did not coagulate. The addition to this of placental extract, produced coagulation in 3 hours at a temperature of 37°C. The addition of 10 gm. of minced, blood-containing placenta to 5 c.cm. of the fibrinogen solution produced

coagulation in 1½ hours. Savaré is inclined to think that the ferment lies in the placental blood, rather than in the placental cells.

To sum up, there is no doubt that placental extract is highly toxic to animals by causing intravascular coagulation. This action is due to the nucleo-proteid contained in the extract, or perhaps to Savaré's "blood-coagulating ferment." Recent work has shown that special endotoxins, in Weichardt's sense, do not exist in the placenta.

The importance of this action of the placenta, and its connection with pregnancy and eclampsia is obvious when it is remembered (*a*) one of the most striking features of fatal cases of eclampsia is the thrombosis of capillaries throughout the whole body; (*b*) Lewinski, Nasse, Kollmann and Dienst have shown that the fibrinogen-content of the blood is raised in pregnancy, and is very high in eclampsia.

Mohr and Freund were led to investigate the placenta for a hæmolytic principle, since in many cases of eclampsia there is evidence of blood-destruction (hæmoglobinuria, hæmoglobinæmia, jaundice). On drying placentas *in vacuo* at 30°C., and extracting with ether, they succeeded in isolating sodium oleate, a lipoid with strongly hæmolytic properties, and which had previously been found in Bothriocephalus latus by Tallquist and Faust. They showed that so small a quantity as 0·00025 gm. was sufficient to hæmolyze human blood-corpuscles; maternal or fœtal serum, especially the former, inhibited its action.

Whilst the energies of workers in the field of eclampsia were strenuously occupied in trying to find the origin of the disease in the normal placenta, Liepmann, in 1905, broke new ground by asserting, in a striking communication, that the eclamptic toxin was to be found in the eclamptic placenta. He was working with a dry powder, manufactured from eclamptic placentas, which he injected into the peritoneal cavity of rabbits; he hoped to produce in the serum a specific antibody for eclampsia, analogous to the immunity which Weichardt and Opitz had been able to produce in animals against large doses of normal placenta, by the injection of small doses. To his great surprise, the animals quickly died, with all the symptoms of a severe intoxication. Control experiments were made with powdered normal placentas, with negative results. He drew the conclusion that in eclamptic placentas there was a poison not present in normal placentas, and wrote enthusiastically:—"It is not the excessive deportation of placental cells, as Veit asserts, nor the liberation of placental endotoxins, as Weichardt asserts, that is the cause of eclampsia; but I believe the toxin of eclampsia is to be

sought in the eclamptic placenta itself." He published the complete communication later in the year.

His experiments were, briefly, as follows:—The placentas of eclamptic patients were minced, dried *in vacuo*, and ground into a fine powder, of the fineness of sifted sugar and of a greyish-white colour. Of this powder a suspension in salt solution was made, a few drops of toluol being added to hinder germ development. A definite dose, usually 1 gm. of the powder, was injected into the peritoneal cavity of rabbits. The total number of experiments was 113. The effect of the toxin was extremely rapid. Soon after the injection, often within five minutes, the animals became comatose, with fixed and widely-dilated pupils; they no longer reacted to cutaneous stimuli; respiration was much accelerated, and in many there were tonic and clonic convulsions, though these latter were absent in the animals which lived only a short time; the temperatures varied, sometimes sinking below normal, and sometimes rising above 40°C. Of 70 animals, only 13 lived, and these showed severe disturbances shortly after the injection. The majority died within the first 12 hours, five after 15—20 hours, and five within 2—8 days. As regards the manner in which the toxin exists in the placenta, experiment showed that it was firmly combined with the protoplasm of the cell. The juices of eclamptic placentas were separated from the pulp in a Buchner's press. Injection of the placental pulp proved fatal, whereas the juices of the same placenta, when injected intravenously, produced no bad effect. But in placentas from cases of very severe toxæmia a smaller proportion of the toxin was found in the extracted juices as well. Further, it was found that the extract, when toxic, could be deprived of its toxicity on the addition of reagents which precipitate albumin; they either precipitated the toxin or carried it down with the precipitate. That the toxin was very labile and difficult to preserve was shcwn by trials of the same placental powder at different dates; the powder which proved fatal on one day was innocuous on the day following. Attempts to extract the toxin by chemical means were fruitless. To sum up, the toxin found in eclamptic placentas exhibits the following proportion: it is firmly combined with the albuminous molecule; it is highly toxic for rabbits; it is highly labile; it can be removed from the pressed-out extract by reagents which precipitate albumin.

Liepmann then experimented with the injection of the placental powder of three patients who had had only a single fit; six animals received 1 gm. each, and all died. He then injected the placental powder of two fatal cases, with 27 and 20 fits respectively, into a second series of animals: four animals received 1 gm. of the placental powder from the patient with 20 fits, and one lived; three animals received 1 gm. of the placental powder of the patient with

27 fits, and here again one lived. The deduction from this series of experiments is that the greater the amount of toxin that has passed over into the organism and the more the number of fits that occur, the less is the amount of toxin found in the placenta; conversely, the placenta is so much the richer in toxin the fewer the fits that occur.

Starting from the assumption that the eclamptic toxin must dominate the brain, Liepmann made a powder from the brains of three eclamptic patients after the method adopted in eclamptic placentas. Nine animals injected with this brain powder gave no special reaction and lived. From this it may be inferred that either the toxin is fixed in the brain and thus neutralized, or that there is no toxin found in the brain. The control experiments here were profoundly interesting. For toxic eclamptic brain powder, when mixed with normal brain essence and injected in certainly lethal quantities gave rise to no symptoms, and the animals all lived. Thus it is shown by a series of experiments, as yet too few to be conclusive, that the toxin of eclampsia is fixed in the brain: very probably this fixation takes place similarly to the like fixation of the tetanus toxin, as experiments *in vitro* show. Liepmann summarizes these etiological facts as follows:—(1) In the eclamptic placenta a toxin is found which is absent from normal placentas. (2) It is identical with the toxin of eclampsia, for the more the toxin that is absorbed from the organism the less there is found in the placenta; and, conversely, the less the toxin that passes over into the maternal organizm the richer the placenta is in toxin. (3) The toxin evinces a marked affinity for the brain calls which neutralize it and are paralyzed by it. (4) The toxin acts deleteriously on the renal parenchyma as well as on the liver. (5) The chorionic epithelium appears to play an important part in the genesis of this toxin; the placenta is thus the place of elaboration and the point of departure of the toxin.

Liepmann's work has been severely criticized. His methods are open to serious objections; the placentas were prepared in a factory, on a large scale, and must have run the risk of slight decomposition before the powder was finally ready. A dry powder, moreover, is not an ideal physical state for a highly labile toxin to exist in: such a method of preparation is very likely to alter its original state. Some of his conclusions seem drawn from very slender premisses. An admirable criticism will be found in Lichtenstein's papers, and in the subsequent controversy. The two other workers, Frank and Dryfuss, who have since experimented with eclamptic placentas, have been able to find no difference between the action of eclamptic and non-eclamptic placentas.

The ferments of the placenta. The placenta, in the number and power of the ferments it contains, is second to no other organ of the body, not even excepting the liver and pancreas.

Bergell and Liepmann (1905) were amongst the earliest investigators; they did not use the method of post mortem autolysis and deduce the nature of the ferments from an analysis of the autolytic end-products; but they allowed placental extract to act on various substances, and noted the resultant changes. They demonstrated the action of the following:—

I. Ferments acting on carbohydrates—(1) diastase; (2) lactase; (3) a glycolytic ferment.

II. Proteolytic ferments. These were very powerful: placental extract has power equal to pancreatic extract, in forming tyrosin from peptone.

III. Lipolytic ferments: the placental extract had no action on fat.

Santi and Acconi (1904) and Mirto (1906) denied the presence of a glycolytic ferment; Costa (1905) claimed the presence of a lipolytic ferment, and Charrin and Goupil (1906) could find no evidence of the action of placental extract on protein.

Such differences of opinion led Savaré (1907) to reinvestigate the subject. He was careful to free the placenta from all blood, and pointed out the necessity of doing this, for the blood itself contains active ferments, whose action may be erroneously ascribed to the placenta. He could not detect invertase, tyrosinase, aldehydase or glycolytic ferments in the blood-free placenta, but confirmed the presence of proteolytic and amylolytic ferments, monobutyrinase and oxidases. Besides these he found others, hitherto undescribed by former observers—(1) a ferment causing the decomposition of glyoxylic acid (described by Schloss in the liver and certain other organs); (2) a blood-coagulating ferment (already referred to on p. —); (3) a deamidizing ferment; (4) erepsin, of considerable activity. As regards the rôle these ferments play, Savaré admits that the proteolytic ferments, especially the deamidizing, may be purely post mortem in action: diastase and oxidase may be connected with the metabolism of placental tissue. There is no proof of any connection between these ferments and fœtal metabolism; however, if the placenta is to be looked upon purely as an organ through which osmotic interchange takes place between the mother and fœtus, the reason for its complicated chemical and biological structure is not apparent.

Autolysis of the placenta. The post mortem autolysis of the placenta has received much attention. Full references will be found in the papers of Mathes (1901), who found abundant formation of albumoses, leucin and tyrosin, and of Basso (1905), who found that, after 7 days' autolysis the soluble nitrogen had increased 100 per cent. Dryfuss (1907) has investigated very fully the autolysis of the eclamptic placenta, and has compared the autolysis of the eclamptic

and the non-eclamptic placenta. His results and figures are very complex, as will be seen from the following resumé:—

These figures represent amounts in grammes in 100 g. of minced placenta.		Total Soluble N.	Soluble Amide N.	Soluble Diamino N.	Soluble Monamino N.
Normal fresh placenta	=A′	0·1328	0·0054	0·0902	0·0616
Normal autolysing placenta	=A″	0·2664	0·0246	0·1068	0·1763
Eclamptic fresh placenta	=B′	0·2483	0·0189	0·1568	0·0823
Eclamptic autolysing placenta	=B″	0·4118	0·0259	0·1656	0·2391
Comparison of A″ with A′	...	2·00	4·50	1·18	2·88
Comparison of B′ with A′	...	1·86	3·50	1·74	1·34
Comparison of B″ with B′	...	1·65	1·37	1·03	2·90
Comparison of B″ with A′	..	3·10	4·89	1·83	3·92
Comparison of B″ with A″	..,	1·54	1·17	1·54	1·30

Autolysis, in all cases, was allowed to continue for seven days. These figures may be interpreted as follows:—

I. *Autolysed normal placenta.*

(*a*) The total soluble N has increased twofold.

(*b*) The amide N has increased in relatively greater proportion than the total soluble N. A reference to the table will show that the proportions of amide N in the autolyzing and fresh normal placenta is 4·5 to 1, *i.e.*, deamidization* is more than twice as great as proteolysis.

(*c*) The diamino acids have increased in relatively less, and the monoamino acids in relatively greater, proportion than the total soluble N.

II. *Eclamptic fresh placenta.* The table shows that autolysis has occurred during life.

(*a*) The total soluble N is about twice as great as in the fresh normal.

(*b*) The extent of deamidization is not so great as in the autolyzing normal, the proportions of amide N between the two being 4·5 to 1.

(*c*) The monoamino acids have increased in relatively less, and the diamino acids in relatively greater, proportion than the soluble N.

III. *Comparison between the autolysis of normal and eclamptic placentas.*

(*a*) In the eclamptic there is a greater formation of total soluble N, *i.e.*, the total autolysis is greater.

(*b*) The amount of amide N formed is relatively less in eclamptic than in normal.

* Amide N is the N split off as NH_3 from the protein molecule by hydrolysis. It exists in the protein molecule in the form of amide compounds, *e.g.*, asparagine, $CONH_2{\cdot}CH_2{\cdot}CHNH_2{\cdot}COOH$. The amino-acids contain N which cannot be split off as NH_3 by hydrolysis; but deamidizing ferments can do this, thereby increasing the amide N at the expense of the amino N.

(*c*) The amount of monoamino acids formed is relatively greater, and the amount of diamino acids is relatively less, in eclamptic than in normal.

The conclusions to be drawn from these figures are:—

(1) Autolysis takes place during life in the eclamptic placenta.

(2) The process is more than a simple autolysis. If this were so, the different fractions of the soluble N would maintain their relative proportions, both in the normal and in the eclamptic placenta. This is not the case, as is shown by the relatively great increase in the amide N, as compared to the total N. This shows that the deamidizing ferment is more active than the proteolytic.

Granting then, that in eclampsia, there is autolysis of the placenta from hyperactivity of its ferments, two possibilities arise—(1) the placental state is the cause of eclampsia; (2) it is only an isolated phenomenon or effect of the disease.

Dryfuss, compared to others, shows commendable caution when he expresses his opinion that, so far, there is no definite proof of the placental origin of eclampsia, but that all that has been done so far is to bring to light certain facts which have an important bearing on its etiology. Hofbauer is more definite, and writes, "The symptom-complex of eclampsia is initiated by a ferment intoxication of placental origin." This is the latest phase of the placental theory of eclampsia.

To ascribe the cause to placental autolysis, and more especially to the action of certain specialized ferments, is very plausible. Dryfuss has shown that the deamidizing ferment is especially active; there are many other ferments in the placenta, notably the "blood-coagulating ferment" of Savaré, and why should not their activity also be raised? A constant feature of eclampsia is a widespread thrombosis; by the absorption of autolytic products and of ferments, ideal conditions are at hand for such a state, and a probable explanation of the thrombosis is the gradual passage into the circulation of the substances from the placenta. Reference has already been made to their action in the blood (p. 329, 330); they all have a powerful action in increasing its coagulability.* The process, once started, proceeds to exert its action to an almost unlimited extent. A vicious circle is created. It has been pointed out (p. 329) that the autolytic ferments of an organ are activated by the presence of ferments and autolytic products from another organ. It is conceivable, therefore, that the presence in the blood of ferments and autolytic products from the placenta, rouses into activity the dormant ferments of the liver and other organs; the result is, autolysis of other cells and a still further absorption into the circulation of autolytic products, and

* For further information on the toxicity of enzymes and autolytic products, the reader is referred to Wells, *Chemical Pathology* (1907), Chaps. II. and III.

so on. The coagulation of the blood in the capillaries, and the consequent impaired nutrition of cells favours the destructive process.

From the foregoing account, it is obvious that, during the past six years a number of valuable facts as to the etiology of eclampsia have been discovered. It is also equally obvious, that a number of worthless theories have been propounded, many of which have been disproved, but which, nevertheless, have served the good purpose of paving the way for better work. As far as it is possible to draw conclusions, the following are suggested:—

(1) There is no special eclamptic toxin.

(2) Chemical discoveries have shown that eclampsia is an auto-intoxication, in which a profound disturbance of protein metabolism plays the chief part, the nature of which now rests on a firm basis.

(3) The chief toxic substances are the products of the disintegration of protein.

(4) In eclampsia, intracellular ferments, especially proteolytic, are raised in activity throughout the body, causing autolysis of cells and production of the above toxic substances.

(5) The primary cause of eclampsia is to be sought in the placenta.

(6) As regards the connection of the placenta with eclampsia:

(i) The "specific placental theory" of Veit must be considered dead; the various specific placental reactions (syncytiolysis, precipitins, etc.), whether produced naturally, or experimentally in animals, do not exist.

(ii) Placental extracts possess no special toxicity for animals, beyond causing coagulation of the blood and death from extensive thrombosis.

(iii) The eclamptic placenta has no special toxicity.

(iv) The intracellular ferments of the placenta are increased in activity in eclampsia. In the light of present knowledge, the most probable theory of the cause of eclampsia is an intoxication of the body by the passage of ferments and autolytic products from the placenta into the circulation, the principal effect of which is increased coagulability of the blood and the activation of autolytic ferments in other parts of the body.

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REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

Resistance of the Red Blood Corpuscles in some pathologic states of the Uterus and Adnexa.

MAUGERI (*Annali di Ostetrica*, August, 1909) publishes methods and results of researches he has recently made on the blood of patients suffering from various gynæcological diseases. He scrupulously followed Viola's technical details, estimating the resistance to a hypotonic solution of sodium chloride of the three stages of erythrocytes, the newly formed, the mature, and the old, and making subsidiary and corrective determinations of the number of corpuscles and their percentage of hæmoglobin. His investigations show (1) that in inflammatory conditions of the genital sphere, in uterine fibromata either simple or complicated by adnexal tumours, and in all malignant tumours of the genital organs, there is an increased resistance of the young and of the mature erythrocytes and a decreased resistance of the old. It is probable that the toxins elaborated in these diseases tend to destroy the old corpuscles, hence to lower their index of resistance, while on the other hand they call forth reserve force in the young and in the mature corpuscles and their index of resistance is raised. (2) In simple cystic tumours of the adnexa and in extra-uterine pregnancy the three resistances remain nearly in their physiologic condition, and therefore (3) from the clinical point of view the determination of resistances may be of subsidiary value. It may, for example, influence the differential diagnosis between a specially soft fibroma and an ovarian cyst with obscure fluctuation, or between an extra-uterine pregnancy and some inflammatory affection of the adnexa. (4) The index of resistance is of no prognostic value. J. H. F.

Acute Thyroidismus after a Gynæcological Operation.

HIMMELHEBER, Heidelberg (*Zentralb. f. Gyn.*, 1909, No. 35), reports a singular case: A deaf mute, 60 years of age and goitrous, underwent a colporrhaphy and an Alexander-Adams operation on account of prolapse. A few days after the operation she exhibited signs of acute thyroid poisoning: fever, dilatation, tachycardia and irregularity of the heart, hallucinations and loss of orientation, and at the same time her goitre entirely disappeared; of the gland, which had been as large as the fist, nothing could be felt except two small cysts. The case is not easily explained; possibly the disappearance of the tumour may have been due to the use of iodized catgut. J. J. M.

Paralytic Ileus; with two successful operations.

C. H. MCKENNA (*Journ. Amer. Ass.*, 1909, No. 10) reports two cases of ileus after operations, one for inguinal hernia, the other for gall stones, in each of which by secondary operation a temporary fistula was established and the intestine irrigated by means of a tube. At a later period 5 or 6 inches of bowel were removed and the fistula closed. Both cases got well. J. J. M.

Carcinoma of the Vulva.

JUNG (*Muenchener m. Wchns.*, 1909, No. 37, S. 1919), in a communication to the Franconian Society of Obstetrics and Gynæcology, said that since he took charge of the Erlangen Frauenklinik on April 6, 1908, he had seen 6 cases of carcinoma of the vulva. Altogether, since 1903, there had been 13 cases under treatment and it was

remarkable that no less than 8 of these had supervened upon kraurosis vulvæ: moreover of the 13 patients, 11 were noted as very fat, only one as being thin and one as moderately nourished.

He insisted that radical treatment alone was the proper course and that the whole vulva with the clitoris should be removed, and also the inguinal glands on both sides with free excision of the fatty connective tissue surrounding them. In fat women it was not easy to determine whether the glands were enlarged or not. It was better to commence with the excision of the glands on both sides before attacking the vulval growth, and to remove them in one mass with the lymphatic band connecting them with the vulva.

The prognosis of these cases was not promising, in particular in regard to primary healing. And it was questionable whether all cases should be operated upon, especially when the urethra was much involved. In one such case he had had very satisfactory results from Röntgen therapy, undertaken in the first instance merely as a *placebo*, and though he did not attach great importance to a single case he would in a similar one again try the X-rays.

In the discussion Hofmeier agreed that the prognosis was unfavourable when the urethra was involved and that the inguinal wounds after removal of the glands were very prone to infection, and that it was there that recurrence was common. He did not operate so radically as recommended but extirpated the growth with the cautery knife.

Grünbaum, Strauss and Werkel did not agree that the prognosis was so extremely bad, but in his reply Jung held to his opinions; he would, however, in suitable cases, in future attempt the extirpation with the cautery knife. J. J. M.

Treatment of Uretero-Cervical Fistula by Boari's Method.

Montuoro (*La Ginecologia Moderna*, August, 1909) describes an operation of uretero-cysto-neostomy by Boari's method. The patient came to hospital in March, 1909, suffering from symptoms which warranted a diagnosis of left uretero-cervical fistula consequent on dystocia and use of forceps 3 months before. Cystoscopic examination confirmed the accuracy of the diagnosis, as it proved the perfect functional activity of the right ureter.

In operating, the patient was placed in the Trendelenburg posture and a median incision made. Intestinal loops were pushed downwards and the uterus and adnexa drawn upwards to the right. The ureter was then isolated behind, under, and in front of the broad ligament, and was implanted in the extra-peritoneal portion of the bladder by means of Boari's button according to the technical details used by Pestalozza and Bertazzoli. No difficulty was experienced in isolating the ureter, and Montuoro therefore concludes that the removal of the adnexa of the same side, strongly advocated by some operators, is inadvisable and unnecessary. The post-operative history of the patient was very satisfactory, and almost afebrile. From the 7th day urine was passed spontaneously and abundantly. On the 14th day, while passing urine, the woman expelled the button which showed no calcareous incrustation. A few days after, she left hospital completely cured and has enjoyed good health ever since.

The spontaneous detachment and emission of the button 14 days after operation disproves the objection raised by many to Boari's method. It shows that there need be no second operation to extract the button, nor need there be any evil results from its remaining in the bladder for a longer or shorter period of time. J. H. F.

Multiple Vesical Calculi.

Stoeckel (*Muenchener m. Wchns.*, 1909, No. 36, E. 1866) recently exhibited 24 hard phosphatic calculi which had been removed from the bladder of an extremely

infirm decrepid and somewhat demented old woman, 57 years of age, with a total prolapse of the vagina and a huge cystocele. Half of these calculi were larger than a hazel nut. They were for the most part removed with curved bullet forceps without previous dilatation of the urethra. The last, a small stone, was similarly removed with a slender prehensile forceps under control of a cystoscope provided with a reflecting apparatus like Jacobi's. J. J. M.

The Treatment of Inoperable Carcinoma of the Uterus.

August Martin (*Surgery, Gynæcology and Obstetrics*, September, 1909) advocates the local treatment of cases in which there is severe hæmorrhage or sloughing. Acetone is the best escharotic, better than the actual or the electric cautery. After a thorough curetting, it is applied on cotton wool, and the vagina is protected, in the usual way, by packing. In a few days the cotton is removed. Later a slough separates, exposing healthy granulations. In many instances, healing occurs in a relatively short time. The application should be repeated every month or two. Pregnancy is not a contra-indication. Miles H. Phillips.

A case of Irreducible Inversion of the Uterus treated by the operation of Kustner-Duret.

P. Schockaert (*Bulletin de la Société Belge de Gynécologie*, T. xx, No. 1) records the case of a woman, aged 19, delivered at term, having produced, by pulling upon the cord, complete inversion of the uterus, which was immediately replaced, but recurred.

Three months later she sought the advice of Dr. Schockaert, when it was found that the uterus was still completely inverted. An incision was made through the posterior fornix, the finger introduced into the uterine infundibulum and the whole of the posterior wall of the body and cervix divided. The uterus was now inverted by unfolding it, so that the posterior incised wall now became anterior and was sutured after paring the edges. The uterus was now replaced through the posterior fornix. This latter was sutured without drainage, and the tampon placed in the vagina to prevent retroversion.

He remarks upon the necessity of plugging the uterus after replacement in cases of inversion as a sure means of preventing its recurrence. B. Glendenning.

Operations for Prolapse.

Schauta (*Gynæcologische Rundschau*, Jahr. iii, Heft 20).—In this article reference is made to Freund's and Wertheim's operations. The operation recommended by Schauta is by an anterior colpotomy, pushing up the bladder, and by dividing the utero-vesical fold of peritoneum, delivering the uterus and stitching the peritoneum to the posterior aspect of the cervix.

Eighty-nine cases are recorded with 5 deaths.

There was complete cure in 77 per cent. of the cases. E. Scott Carmichael.

Prolapse of the Uterus and Rectum.

v. Rooy (*Muenchener m. Wchns.*, 1909, No. 35, S. 1811) describes a case in which the uterus in complete retroversion was found in the posterior vaginal wall, and in this wall there was a rectovaginal fistula through which the bowel was prolapsed to the length of 12 cm. The condition was caused by a Zwanck-Schilling wing pessary. The false position was successfully treated by operation. J. J. M.

Myomata and their treatment.

Torkel (*Monats. f. Geb. u. Gyn.*, Bd. xxix) reports on the treatment of the cases of myoma that were admitted into the Elizabeth Hospital at Breslau during the last

six years. The ruling principles accepted were: Internal drugs are not much use; curettage may do good but is to be avoided when the tumours are submucous. Atmokausis is not to be recommended; in younger patients conservative measures are to be preferred and radical operations avoided if possible. The formation and growth of fresh myomatous nodules, or the chance of possible rupture of the uterus, should not be deemed a bar to enucleation. Myomata expelled into the vagina, or still in the cavity of the uterus, may be removed by the vagina. Removal of tumours in a state of decomposition is generally to be followed by total extirpation. Tumours larger than a fœtal head should be removed by longitudinal abdominal section. In such cases supravaginal amputation is to be preferred, the stumps being left as small and dry as possible and carefully covered with peritoneum. The removal of deep interstitial myomata during pregnancy is hazardous. J. J. M.

Myopathic Uterine Hæmorrhage.

Brooke M. Arspach (*Surgery, Gynæcology and Obstetrics*, September, 1909) presents an abstract of each of 62 cases of uterine hæmorrhage, attributed to lesions of the myometrium, as well as an elaborate analysis of the entire number. The cases have been collected from the available literature up to October, 1908. He also gives, in a tabular form, the clinical and histological features of 15 uteri removed by himself for the same indication and compares them with the corresponding features of 23 uteri removed for causes other than hæmorrhage. The methods employed in cutting and staining the sections are carefully described. The following conclusions are arrived at: (1) the arteriosclerosis to which "apoplexia uteri," "intractable hæmorrhage," have been attributed, is nothing more than a normal sclerosis and obliteration of the vascular channels of the uterus, occurring in due proportion to the parity and the age of the individual; (2) myofibrosis occurs normally in direct proportion to the parity and age of an individual. The normal atrophy of the uterus, which begins about the time of the menopause, affects the muscle a little more than it does the connective tissue, but this plays no part in the production of hæmorrhage; (3) there are two forms of *chronic metritis*. The *first* is an actual fibrosis of the myometrium and follows an acute metritis. This form of chronic metritis is complicated, as a rule, by adnexal disease, so that the symptoms, whatever they may be, are not referable entirely to the uterus. The *second* form is more or less chronic from the beginning. It is closely connected with subacute infective metritis, subinvolution of the uterus and pelvic congestion. The wall of the uterus, including both the muscle and the connective tissue, is hypertrophied and œdematous; and the sclerotic changes in the vessels may appear more marked than normal, but the symptoms are due to the associated displacement, insufficient heart, fungous endometritis, hypertrophied cervix or adnexal lesions; (4) cardiac disease favours climacteric hæmorrhage by producing pelvic congestion. It is only reasonable to suppose that an increase of blood pressure in the pelvic vessels from general arterio-sclerosis, cirrhosis of the liver or granular kidney, would have the same effect; (5) hæmorrhage, purely the result of myometrial disease, may be due to an absence of the normal increase of elastic and fibrous tissue, or, in other words, to a lack of the physiologic sclerosis of the vascular system and fibrosis of the uterus during the later generative period, resulting in engorgement and congestion of the uterine vessels; (6) in a large proportion of so-called hæmorrhagic uteri, the symptoms are not dependent upon any histologic alteration in the myometrium, but arise from fungous endometritis, hypertrophied and cystic cervix, displacement of the uterus, inflammatory lesions of the adnexa or of the cellular tissue of the pelvis, or congestion of the pelvic blood vessels from cardiac or kidney disease. Miles H. Phillips.

Carcinoma Corporis Uteri with Myoma.

FRANKENSTEIN (*Muenchener m. Wchns.*, 1909, No. 37, S. 1923), at the Cologne Medical Society, recently exhibited a horizontal section of a uterus, removed by the vagina, with the not very common combination of carcinoma corporis wth myoma. The specimen was from a nullipara, 66 years of age, in whom, after 15 years menopause, periodical hæmorrhages had occurred for 2 years and for the last six months had greatly increased in frequency and amount. In spite of an extensive paravaginal incision on the left side, the operation was made difficult by the myoma slipping so far forwards that it was impossible to open the anterior vault, and the somewhat large uterus had to be removed entire by posterior colpotomy. The specimen exhibited macroscopically and microscopically, a sharply defined separation of the carcinoma from the myoma. The patient made a good recovery and was well six months afterwards, but recurrence must be expected as the carcinoma at the left corner extended to the peritoneum.

He also showed a uterus, from a quintipara of 58, with two mucous polypi in its cavity. The woman, after 8 years menopause, had a profuse menorrhagia not accounted for by an unsuspicious mucous polypus, as large as a little finger, projecting out of the os externum. Examination of a portion of the polypus in the cavity revealed an œdematous carcinoma, but the rest of the corpus was free from malignant disease and the prognosis for the patient after operation seemed favourable. J. J. M.

Cyst of Gartner's Duct removed by Laparotomy.

UNTERBERGER, Königsberg (*Monats. f. Geb. u. Gyn.*, Bd. xxix, S. 587), describes an interesting case of cyst formation which, from the pathological anatomy and exact microscopical examination, was undoubtedly derived from Gartner's duct. Clinically the diagnosis is uncertain, depending on the seat of the tumour, its close connection with the uterus, its relative immobility and its absolute insensibilty. As with ovarian and parovarian cysts, the prognosis is unfavourable; hydrorrhœa may weaken the patient, or menorrhagia or other complications supervene. Moreover owing to their intimate connection with the uterus the removal of such cysts is more difficult than that of ovarian or parovarian ones. Extirpation with supravaginal amputation or total extirpation of the uterus, is the only treatment to be thought of. J. J. M.

Vaginal Ovariotomy during Labour.

RÜHL, Dillenburg (*Monats. f. Geb. u. Gyn.*, Bd. xxix, S. 275), says that in cases of ovarian tumour obstructing delivery, forcible extraction of the child is not to be recommended. The tumour, if small and moveable, may be reposed above the pelvis. Punction and incision are dangerous for the mother. The extirpation of the tumour has frequently to be undertaken and is best performed by the vaginal way. He describes a case in which an adherent multilocular cystoma was diminished by incision so that the child could be extracted by forceps. When labour was completed the adhesions were separated by posterior colpotomy and the tumour shelled out and removed; drainage was provided, and the recovery was uninterrupted. J. J. M.

Traumatic Rupture of Pyosalpinx: General Peritonitis: Successful operation.

PROUST and MASCARENHAS (*Annales de Gynéc. et d'Obstét.*, September, 1909) report a genuine instance of a complication really not common in pyosalpinx. The patient was forty years old, and had been twice pregnant; on each occasion labour occurred at term. The first child was born fifteen and the second seven years before the present illness. The patient had a bad fall, followed by acute abdominal pain, which seemingly subsided altogether for two days, when it reappeared, and

at the end of three days became intolerable. There was distension, with vomiting, rapid weak pulse, relatively low temperature and characteristic facial aspect. The parietes were rigid and intensely tender. A mass highly sensitive to touch occupied Douglas's pouch, mainly to the right, pushing the cervix a little forward; it felt like a dilated tube. Peritonitis or rupture of a tubal gestation sac was diagnosed. At the operation no free blood was found in the peritoneal cavity, but there was some fetid turbid fluid. The sigmoid flexure was drawn up and covered with compresses. Then the pelvic cavity was found to be full of pus, and its walls, especially on the right, were lined with false membranes. The pus issued from an unusually large pyosalpinx which had occupied nearly the whole of Douglas's pouch; there was a rent in its posterior wall whence the pus, which was very fetid, had escaped. The dilated tube was enucleated. Strange to say, the left appendages were healthy. As the pus was septic a gauze drain was left in for three days. The clinical history showed that the pyosalpinx was of old standing and that the accident had caused re-infection of its purulent contents. ALBAN DORAN.

Chorionepithelioma in a Fallopian Tube twice the seat of Ectopic Gestation.

LÖVQVIST (*Zentralbl. f. Gynäk.*, No. 30, 1909) reported, at the August meeting of the Northern Surgical Union, Helsingfors, a case where a patient, aged 37, a 5-para, had been under treatment some years previously for salpingitis. In 1906 she underwent an operation for tubal abortion. The affected tube was not removed. In December, 1908, this patient once more came under Lövqvist's treatment for tubal pregnancy. He removed the tube itself, the same which had been gravid before. It was carefully examined under the microscope, and then evidence of chorionepithelioma was detected. The disease was in an early stage, yet there was distinct, indeed very free proliferation both of the syncytium and also of Langhans' cells which had penetrated into the muscular wall as far as the serous coat. At one point the peritoneum was perforated.

In the discussion on this case it was maintained by one speaker that a tube bearing a fœtal sac should be removed even when it has expelled its ovum by the now well-known abortive process and ceased to bleed. ALBAN DORAN.

Ruptured Extra-Uterine Gestation.

JACOBS (*Bulletin de la Société Belge de Gynécologie*, T. XX, No. 2), apropos of two cases of ruptured extra-uterine gestation, gives the result of an inquiry in Belgium on the result of operation made in these cases. Briefly, the statistics deal with a total of 802 cases.

Of these, 615 were operated in the first few hours following rupture; result, 27 deaths, mortality 4·42 per cent.

One hundred and forty-two cases were operated from a few hours to one or two days after the first symptoms of rupture; 12 deaths, mortality 8·45 per cent.

Forty-five cases were unoperated; 25 deaths, mortality 54·5 per cent.

Cases of hematocele, either in the broad ligament or Douglas pouch, have not been included in these statistics. B. GLENDENNING.

Secondary Abdominal Gestation, and retention of Fœtus for three years.

J. M. AHERN (*Le Bulletin Médical de Québec*, October, 1908) records the case of a woman aged 37, married 17 years, who had during the first six years a full term child each year, then nine years later became pregnant for the seventh time. During the third month of this pregnancy she fell from a height of six feet and injured

slightly her leg. She went to bed for nine days with severe pains in the abdomen and frequent fainting attacks. She recovered; the abdomen continued to enlarge and she felt fœtal movements until term, when, without incident and without false labour, the movements ceased. There was slight lactation. After a few months menstruation returned and continued regularly for two years, when she again became pregnant. At term vaginal examination showed the cervix dilated, and through the opening could be felt the head of an infant intra-uterine, high up. In Douglas's pouch and to the right there was felt another smaller head, transversely flattened, which could not be displaced, and which hindered the descent of the first. Laparotomy was resorted to, the uterus, containing a full-term live child, removed, and then a cyst situated in the pelvis behind and to the right of the uterus shelled out. This contained a full-term fœtus, dead, well-formed and in good state of preservation. The placenta was small and easily detachable.

He remarks that evidently the fall caused rupture of the tubal gestation which then implanted itself in the abdomen. B. GLENDENNING.

A Case of Primary Ovarian Pregnancy combined with Intra-uterine Pregnancy.

C. C. NORRIS (*Surgery, Gynæcology and Obstetrics*, August, 1909), before describing his case, points out that Speigelberg's Criteria must be further amplified, it being necessary to show that the tube is not only intact but also free from any *microscopical* evidence of a gestation sac. Without this restriction, certain cases of tubo-ovarian pregnancy may be mistaken for instances of primary ovarian pregnancy. His patient was 23 years old, and had never before been pregnant. She was admitted into hospital in February, 1909. Her last normal period, lasting 5 days, occurred in March, 1908; the four following periods were only slight "shows." In August she bled profusely for three days; this was followed by an irregularly, scanty and profuse discharge until October; since when there has been no discharge. There has been no fever, no sickness and no pronounced pain. On examination, the breasts were active and the pregnant uterus could be felt to reach slightly above the symphysis. It was markedly deviated to the right. To the left and above it there was an irregular mass, which reached to within three fingers' breadth of the umbilicus. One hard nodule, just above the pubes, felt like a fœtal shoulder. There was no tenderness. Dr. J. G. Clarke operated and removed the left Fallopian tube, a ruptured ovarian gestation sac ($15 \times 12{\cdot}5 \times 12$ cm.), and a slightly macerated five months fœtus, which lay partially within the sac. The uterus was then incised and a 3 months ovum removed intact. The uterus was packed with gauze before the wound in its wall was sutured. The vermiform appendix was also removed. The right appendages were seen to be normal, the ovary containing a large corpus luteum. Convalescence was normal. There is a detailed pathological report, macroscopical and microscopical, which proves that the case conforms to all Speigelberg's and Whitridge Williams' demands. The left Fallopian tube, which was attached to the gestation sac by a normal mesosalpinx, was examined microscopically at intervals of 5 cm. and failed to show any evidence of the presence of an ovum. Its inner third contained a decidua, the result of the intra-uterine pregnancy. Of ten sections taken from various parts of the sac wall, six showed positive evidence of ovarian tissue. The placenta was represented by chorionic villi, most of which had lost their syncytial covering. The villi rested in a layer of blood, between which and the ovarian tissue was a well developed fibrin layer. There were no villi in the ovarian stroma, though a few syncytial cells could be demonstrated in it. The fœtus was in the early stages of transformation into a lithopædion. The interesting points of the history are that the rupture of the ovarian gestation sac produced no severe symptoms, and that the irritation from the presence of the fœtus in the peritoneal cavity was not sufficient to

prevent or interfere with the subsequent uterine pregnancy. Norris believes that this is only the second recorded case of combined intra-uterine and ovarian pregnancy, and the first in which the gestations have been of different ages. After making an extensive search through the literature bearing on ovarian pregnancy, he has found nineteen positive cases. A short synopsis of each of these is given, and also a table showing the chief points of interest. MILES H. PHILLIPS.

The Opsonic Index of Mother and Child during Pregnancy and Puerperium.

BUSSE (*Gynæcologische Rundschau*, Jahr. iii, Heft 21).—At the end of pregnancy the opsonic index in a healthy woman to staphylococci is the same as in the normal woman

In the normal puerperium it is also on the average normal, although liable to variations.

In new-born children opsonin is always present, and on an average is 0·4 of that of the mother.

The amniotic fluid and the fœtal urine contain normal opsonin. Mother's milk does not contain it. E. SCOTT CARMICHAEL.

Experimental Production of the Maternal Placenta.

LEO LOEB (*Journ. Amer. Med. Assoc.*, Vol. liii, p. 1471, 1909) has shown previously that it is possible to produce at will any desired number of maternal placentas or deciduomata in the guinea-pig by making incisions into the uterus at a certain period after ovulation. Similar experiments have brought about the same results in the case of rabbits, and have demonstrated that the deciduomata are produced independently of any specific action of the ovum. After extirpation of the ovaries the formation of the maternal placenta takes place only in a small minority of all cases, and in these the deciduomata that form are small. Some sensitizing material is therefore formed in the ovaries, and subsequent experiment has shown that the sensitizing substance is produced in the corpus luteum. It is possible to ascribe a a definite function to the corpus luteum, namely, that of supplying a sensitizing substance to the uterus which prepares the latter to respond with the production of the maternal placenta, if an external stimulus of a mechanical nature is added. There is no evidence to show why the spontaneous rupture of follicles is followed by the formation of a corpus luteum. Experiments were made near the period of ovulation by making incisions into ripe follicles, but in no case were these incisions followed by the production of corpora lutea. The formation of deciduomata has been proved to be independent of the central nervous system, since they could be produced in a piece of uterine tissue which had been transplanted into the subcutaneous tissue of the same animal. C. NEPEAN LONGRIDGE.

Pregnancy and Labour in young primiparæ.

GACHE (*Travaux D'Obstétrique*, 1909) has collected cases which have been previously published of pregnancy in girls under 13 years of age. He gives the name of the author he quotes, but does not indicate where the communication can be found.

The youngest mother is a girl of 8 years, recorded by Molitor at Oberpallen in Belgium.

Other cases are :—

Delivery at 9 years old [Ruttel, Keimdmann].

Pregnancy at 9 years old [D'Outrepont].

Delivery at 9 years and 7 months with child weighing 7 lbs. [Henry Dodd of Billington].

Delivery at 10 years [Rowlet]; 10½ years [Cortis, Macramara].

Delivery at 11 years complicated by eclampsia [Roberton].
Delivery at 11¼ years [Scott of Chicago]; 11 years and 11 months [Willard].
Delivery at 12½ years with 5½ lbs. child [Slaughter].
Delivery at 12½ years [Witner-Christian, H. Bousquet, Smith].
Forceps delivery of 12 lbs. child at 12 years and 10 months [Drakeley Rood].
Twin pregnancy at 13 years [Wilkinson of Chicago].
An example of a grandmother aged 25¾ is recorded by Ketchum.

Gache himself publishes six cases of labour in patients of 13, the average duration of labour being 34 hours. Three cases ended naturally, two required low forceps and one patient had Cæsarean section performed on account of contracted pelvis. The children were four males and two females, their average weight being 2,890 grammes. All presentations were cephalic

He also gives details of 11 cases of labour in patients of 14, the average duration of labour being 19 hours. Eight cases ended spontaneously, two required low forceps and one breech case required intervention on account of prolapse of the cord. The children were four males and seven females, and their average weight was 3,086 grammes.

He has had 16 patients aged 15, the average duration of labour being 19 hours 40 minutes. Fifteen cases ended naturally, forceps only being used in one case complicated by eclampsia. Cephalic presentation in all cases. Seven male and nine female children were born, of an average weight of 3,006 grammes.

He had 58 cases aged 16—one being a three months' miscarriage. Of the 57 remaining cases, four were breech presentations and the rest cephalic. The average duration of labour was 19 hours 40 minutes. Fifty-two cases ended spontaneously, forceps were used in two and the rest were breech cases in which aid was given. Twenty-nine male and 28 female children gave an average weight of 3,170 grammes.

Reviewing the whole series of 91 cases together, Gache points out that no case of placenta prævia occurred, and only one case of eclampsia. Pelvic contraction was noted four times, Cæsarean section being necessary in one case, forceps in two, and natural delivery took place in the fourth case. He agrees that perineal tears in these young primiparæ are less frequent than in primiparæ generally. In his cases [in the Rawson Hospital, Buenos Ayres] the puerperium has been uneventful and no deaths have occurred. CLIFFORD WHITE.

Myoma and Pregnancy.

AT THE XVI. INTERNATIONAL CONGRESS OF MEDICINE.

A. MARTIN (Berlin) referred to Hofmeier's hypothesis which questions the existence of any ætiological connexion between myoma and sterility and suggests that in pregnancy, owing to a plentiful blood supply, there is a causal relation for the development of any myomatous germs present in the uterus. The influence of myomata in preventing conception would be convincingly proved if women, previously sterile, conceived as soon as such tumours were removed. Many women with such tumours are unmarried or elderly, yet, according to Winter, from 18 to 20 per cent. of women under 40 years of age conceive after the removal of myomata, and Martin, in addition to 14 such cases of his own, has collected 13 others observed by v. Ott, Amann and Engström. It is therefore indubitable that myoma does not exclude pregnancy. The number of women with myomata who conceive after many years of sterile marriage and in whom a single ovum is developed when they are advanced in life, is quite remarkable. Examination of these cases shows that neither the seat, nor the size, nor even the number of the tumours, has any relation to the occurrence of pregnancy. The first part of Hofmeier's hypothesis may be accepted, the second is not to be rejected off-hand.

E. KUFFERATH, of Brussels (the late), sent a communication on the treatment of fibromata during pregnancy, in which he altogether condemned the induction of abortion for such complication. When trouble is caused by a tumour lying in the pelvis, reposition must be attempted, if necessary after abdominal section, but Cæsarean section should be avoided if possible.

Pozzi (Paris) said: Pregnancy may cause existing myomata to increase in size, and this enlargement, especially when the tumours are in the pelvis, may cause symptoms of compression, and when the growth is very rapid (fibromes à marche galopante), may endanger the patient's life. Moreover, pregnancy may lead to œdematous infiltration, softening, cystic transformation, suppuration or gangrene, or displacement of the womb.

The tumour may not affect the pregnancy at all, but, on the other hand, may cause symptoms more or less serious owing to retroversion and incarceration of the gravid uterus, compression of the nerves, vessels, urinary or intestinal system, peritoneal irritation, or torsion of the pedicle of subserous growths or of the pregnant uterus on its axis. Abortion occurs in from 5 to 6 per cent. of the cases, premature labour not quite so often.

The diagnosis of co-existing pregnancy and myoma is difficult and may be impossible without repeated examinations; an expectant attitude should be maintained till the signs of pregnancy are unmistakable.

During pregnancy no interference with the tumour is justifiable unless for complications entailing danger. The artificial termination of pregnancy is not indicated. Conservative myomectomy is the ideal procedure, but, unfortunately, is not always possible. Hysterectomy should be the last resource.

FABRICIUS, FELLNER, SZABO, VINEBERG, BOSSI, PINARD and DOLÉRIS took part in the discussion, also SELLHEIM who showed pictures of a myoma completely filling the pelvis and forming an absolute bar to sexual connexion; GOTTSCHALK, who thought that sterility favoured the development of myomata; HOFMEIER, who held that pregnancy was not affected by the presence of labour.

MARTIN, in replying, again insisted on the frequency of the complication of uterine myoma with pregnancy and the fact that such tumours do not cause sterility.

SCHAUTA pointed out the general agreement that we should in cases of myoma during pregnancy adopt an expectant attitude; he did not believe that sterility favoured the development of myoma.

Tetany and Pregnancy.

In an article on this subject GACHE, of Buenos Ayres (*Travaux D'Obstétrique*, 1909) gives details of a case which he recently had under observation. His patient was a housewife, 25 years old, who had had chorea and hysteria. She had had four previous children and two miscarriages. She first came under observation on account of severe vomiting when she was six months pregnant; the vomiting had been increasing since the fourth month of pregnancy and had reduced the patient to such a state of weakness that she could hardly be roused to answer questions. The pulse was rapid and imperceptible at the wrist. Temperature 38·5°C. The urine, which required catheterization, contained neither sugar nor albumen.

Treatment by various drugs—rectal feeds, etc., gave good results for eight days, when she had a severe attack of tetany, the arms, fingers, legs and face being affected. The attack, which lasted several minutes, was repeated on subsequent days, but the patient improved under bromides.

It is pointed out that in this case the stomach was the actual cause of the attack, which was predisposed to by pregnancy occurring in a hysterical subject.

He gives a short review of the opinions of various authorities on the subject. Thus, Trousseau originally thought that tetany occurred only during lactation, but

others have since pointed out its coincidence with abdominal and thyroid disease and conditions in which the blood is concentrated. Tonneté and Rabaud have seen attacks coincide with the onset of menstruation, and Parmentier and Delpech quote cases where every pregnancy has been complicated by tetany. Olshausen and Veit associate the thyroid changes which accompany pregnancy with the disease, and Dienst of Breslau quotes a case where a patient, after removal of a goitre, suffered from tetany during pregnancy,—and improved rapidly after delivery, but relapsed again later.

Pestalozza and Dakin state that the most severe form of tetany known is that which complicates pregnancy, and that it has frequently a rapidly fatal issue.

Viller, of Milan, lays down three laws on the subject :—

1. Women with tetany are not improved by pregnancy, but are made distinctly worse.

2. It tends to recur at each pregnancy.

3. Tetany complicating lactation is not necessarily followed by another attack during the next pregnancy. CLIFFORD WHITE.

Ovarian Cyst complicating Pregnancy.

MM. CHAMAYON and GILLES (*Comptes Rendus de la Société d'Obst. de Gyn. de Paris*, May, 1909) reported to the Obstetrical Society of Toulouse a case of ovarian cyst complicating pregnancy. A doctor in the town had been called to see a girl of 16 who had taken poison and had been seized with serious gastro-enteritis in consequence. On abdominal examination the doctor was led to suspect pregnancy as a motive for the attempted suicide. MM. Chamayon and Gilles being called in, confirmed the diagnosis, and thought that the appearance and volume of the tumour indicated a pregnancy of from 2—2½ months duration. The patient then admitted liability to pregnancy, but said it must date from less than a month before. Her statement was doubted considering the marked development of what was taken to be the uterus, but a month later a marked change in the swelling occurred. It assumed the form of a displacable tumour, the size of a large orange, firm in consistence and freely moveable. It now became clear that the patient suffered from an ovarian cyst, which at first pelvic, had been pushed out of the pelvis by the enlarging uterus. In its first position, owing to the small size of the uterus the two seemed to form one mass. The question of treatment now arose, and a difference of opinion took place between surgeons and obstetricians. Finally, on obstetrical advice, it was decided to operate at once, and a dermoid cyst (weiging 350 grammes after puncture) was removed. The patient left hospital completely cured 14 days later. Pregnancy ran a normal course, and delivery occurred about five months later. The case is interesting for two reasons—(1) because of the difficulty of diagnosis (*a*) the existence of an ovarian cyst, and (*b*) the date of pregnancy when the two tumours are juxtaposed in the same antero-posterior plane; and (2) because of the diversity of opinion as to the treatment to be adopted. The opinion followed had been that of M. Audabert, who held that in an early pregnancy and with a tumour which was liable to torsion, immediate intervention was desirable since abortion was unlikely to occur. Had the tumour been discovered late in pregnancy it might have been wise to delay operation as long as possible, seeing there would be great probability of abortion following it. J. H. FILSHILL.

The utility of examining under chloroform in cases of Contracted Pelvis.

M. LEPAGE (*Comptes Rendus de la Soc. d'Obst. de Gyn. de Paris*, April, 1909) discussed before the Obstetrical Society of Paris and of Toulouse the advisability of examining under chloroform in cases where pelvic defects might not be recognized

by measurement. This might happen in the case of women who had no external signs of rickets but in whom the sacro-vertebral angle was so high that it caused serious dystocia, or it might take place in women whose previous confinements had been easy, but in whom dystocia had arisen because of disproportion between the head and the pelvic passages. In support of employing examination under chloroform, he gave the history of two cases he had recently attended. The first patient, a primipara, had some signs of rickets and a narrow pelvis, but as the uterine contractions seemed at first efficacious it was hoped delivery might be spontaneous. As a day passed without progress examination under chloroform was made. It was discovered that the pelvis was much more contracted in every direction than a previous examination without chloroform had revealed, and that the promontory was high and projecting. A Cæsarean section was performed, with good results for both mother and child. The second patient, a secundipara, also showed signs of rickets, but said that her previous confinement had been spontaneous. It appeared from measurement and palpation that the second might be the same, and examination under chloroform was not made till the second day after the cervix had begun to dilate. Then it was found that the sacral angle was very high, and the head of the child much ossified. Considering the stage of dilatation, symphysiotomy was performed rather than Cæsarean section, and ultimately the mother made a good recovery, though at first her condition gave rise to some anxiety.

M. Lepage is of opinion that if examination under chloroform had been made 24 hours earlier in this case a Cæsarean section could have been performed, with better results than the symphysiotomy, and that in the first case examination had enabled him to intervene in the most useful way and at a more favourable time.

J. H. Filshill.

The Prophylactic Treatment of Eclampsia and its results.

Stroganoff, St. Petersburg (*Monats. f. Geb. u. Gyn.*, Bd. xxix, S. 567), describes a prophylactic method of treatment which in more than 300 cases has given him most brilliant success—a maternal mortality of 6·9 per cent., a fœtal of 21·6. The method consists, essentially, in the liberal administration of morphia and chloral hydrate. He declares that the idea that narcotics have a bad effect on eclampsia is untenable and that the systematic adoption of his method of treatment would greatly diminish the necessity for operative measures.

J. J. M.

A case of Eclampsia accompanied by Hemiplegia.

C. W. Barrett and J. H. Harger (*Amer. Journ. Obstetrics*, September 1909) report a case in which eclamptic fits to the number of over 70 occurred in a woman delivered of her first child 20 hours before. She was unconscious for two days and on recovery became restless, resisting all examination very strenuously, but it was noticed that the right leg moved but little. The next day her mental condition had improved, but it was noticed that she could not speak, and had paresis of the right side of the face, with total paralysis of the right arm. The reflexes in the latter situation were lost. There was more movement in the right leg. Recovery was gradual but well maintained.

J. B. B.

The Sterilisation of Pregnant Tuberculous Women by total vaginal extirpation of the gravid uterus with its adnexa.

Ed. Martin (*Muenchener m. Wchns.*, 1909, No. 24, S. 1228), Assistant at the Charité Klinik at Berlin, formulated the principles upon which the above-mentioned proceeding is undertaken in Professor Bumm's service, as follows: (1) Objective signs of tuberculosis must be present, or, in cases of rapidly succeeding pregnancies,

the suspicion of such disease must be supported, by a marked deterioration in the patient's general condition with loss in her weight. (2) Nothing is to be gained by terminating pregnancy when the pulmonary disease is far advanced or the pregnancy has approached its second half, except in sudden attacks of laryngeal or pulmonary œdema when delivery may save the patient's life. (3) The cases in which the termination of pregnancy may be indicated are those in which the pulmonary mischief is slight or of moderate extent, and the pregnancy has not proceeded beyond one-third of its term. In deciding the question, a negative reaction of the conjunctiva to tuberculin is a valuable help. (4) Termination of the pregnancy, when necessary, may be effected by emptying the uterus under lumbal anæsthesia with or without sterilization, or by total extirpation of the gravid uterus with it adnexa. Since tuberculous women are extremely prone to conceive one is in many cases obliged to protect the patient from opportunities of fresh conception or to sterilize them by more or less extensive resection of the tubes. But after the evacuation of the uterus, the latter method would not save the patient from the possibly detrimental effects of childbed, and on this account in all cases in which the sterilization of a tuberculous woman seems necessary at the Charité, they ensure it by total extirpation of the gravid uterus. Simultaneous removal of the ovaries seems desirable for the following reasons: Almost all women who are castrated before the physiological menopause become very fat, and as the formation of fat is accepted as a favourable sign of the equilibrium of the system, it may be especially desirable to secure it for tuberculous women.

It may be objected that total extirpation is a too formidable proceeding, but as performed at the Charité under lumbal anæsthesia it does not take long or cause any hæmorrhage to speak of: incision round the portio, pushing the bladder out of the way, capsizing and turning out the uterus, clamping the ligamenta suspensoria ovarii and the ligamenta lata, and the removal of the uterus can all be done in three or four minutes, and the necessary work in securing the stumps of the ligaments and the toilet of the peritoneum and vagina in 20 minutes more. A total extirpation so performed is by no means a formidable proceeding, and the patient then has no puerperium to pass through. The healing of the operation wound is a much slighter tax on the system, and the patients, especially if not kept long in bed, make a rapid recovery. Details of 10 cases are appended. J. J. M.

Renal Syphilis in Pregnancy and Childbed.

Hirsch, Berlin (*Zentralb. f. Gyn.*, 1909, No. 35), supplements the principles on the connection of syphilis with renal disease laid down by Welander in 1896 with the following theses, on the ground of personal observation: A unilateral, painful, diffuse, renal tumour with urine diminished in quantity and containing a large amount of albumin, but with nothing in the sediment except numerous well-preserved cells of renal epithelium, is of a syphilitic nature and to be treated with iodide of potash.

Obstetricians should bear this form of disease in mind especially in cases of renal inflammation in childbed which do not yield to the usual treatment. J. J. M.

Morphine and Scopolamine in Labour.

J. Halpenny and C. H. Vrooman (*Amer. Journ. of Obstet.*, October 1909) give their experiences in 100 cases of labour in which this form of anæsthesia was employed. They first consider the pharmacology of the drugs used, and then comment upon the lack of uniformity in the results obtained by different observers. This they consider to be due to the quality of the preparation used rather than to the method of its exhibition. In their first case, a primigravida of 38, they found that "a rigid os seemed to dilate more readily, and this while the patient was in comparative ease. There was no laceration and no ill effect on mother or child."

With regard to the need for operative interference the authors report that it was required in 17 cases. Low forceps were used in 9 cases, 3 cases of occipito-posterior positions, 2 of eclampsia, one in which the membranes had ruptured 48 hours before pains began, one in a Jewess who had taken no exercise for 4 months, and one in a primipara aged 32. They quote also the experience of Newell, who says that with the use of these drugs operative interference is required less often than is usual without their use, he having had 14 forceps cases in 123 patients.

They give the initial dose of morphine sulphate gr. ¼ and hyoscine hydrobromate gr. $^1/_{100}$ when dilatation has well commenced and the pains are recurring about every 7 minutes. Should the patient wake completely after 2 or 3 hours a second dose of hyoscine gr. $^1/_{100}$ is given, except in neurotic cases where in a few instances the morphine is repeated, with or without the hyoscine. Occasionally a little chloroform is used at the time of the expulsion of the head.

It is not recommended that the drugs be given when labour is far advanced or when it is precipitate; and the writers quote the opinion of Fenton of Toronto, who says, "Do not give within 2 hours of delivery, withhold after the membranes rupture if there is moderate dilatation of the os, or if the cervix is completely dilated, even if the membranes be intact. If labour be progressing unusually rapidly better give chloroform instead."

The conclusions the authors of this paper come to are: Scopolamine and morphine, when carefully administered, will safely alleviate consciousness of the pains of labour and in many cases abolish any remembrance of pain. No bad effects on the mother have been observed, though there may be minor symptoms such as delirium, or flushing of the face.

In only one case was there some asphyxia of the child and here the symptoms were not dangerous.

Labour is probably not delayed, though on this point the writers think they have not had enough cases to judge with certainty. J. B. B.

Myoma and Labour.

At the XVIth International Congress of Medicine.

F. Schauta (Vienna) considered myoma to be an impediment to conception: among more than 100,000 cases in his klinik he had only met with 86 instances of co-existing myoma and pregnancy. Among these 86, primiparæ and elderly women predominated. In more than half the cases labour is spontaneous, but the placenta is often prævia or adherent.

If the tumour is above the contraction ring, one may wait, and even if it is deep in the pelvis it may slip upwards, or some attempt must be made to repose it. Obstetric interference, merely with the view of forcibly extracting the child past the tumour, entails the dangers of contusions, embolism and necrosis. Cæsarean section is an operation of necessity, yet one to be considered in cases of myomata even when they do not offer any impediment to delivery, and in delayed labour in elderly primiparæ. When labour is impeded, the tumour may be enucleated by the vaginal or abdominal way and the child delivered by the vagina, or we may perform Cæsarean section and supravaginal amputation or total extirpation of the uterus.

Scipiades, in 985 cases of myoma had found 75 complicated by pregnancy. Pregnancy was certainly not excluded by uterine myomata, but was exceptionally rare when the tumours were multiple, large, and near the mucosa, and that such tumours had an influence upon sterility and fertility must, he thought, be admitted.

Myoma and Childbed.

At the XVIth International Congress of Medicine.

O. Engström (Helsingfors) considered that the puerperal and post puerperal involution of the uterus accounted for the fact that myomata of the uterus, especially

if intramural, may diminish greatly in size, or may undergo necrosis. Submucous myomata with small bases of attachment may be expelled: intramural tumours, as a result of infection, may become encapsuled owing to suppuration. Submucous growths and even intramural myomata, which include a large portion of the uterine wall, may interfere with the contraction of the uterus. Any woman with a myoma of the uterus is thereby more exposed to the danger of a puerperal infection and less well prepared to overcome it. J. J. M.

Placenta Prævia: Treatment.

THIES, Berlin (*Monats. f. Geb. u. Gyn.*, Bd. xxix), reports that during the last four years 179 cases of placenta prævia were treated at the Charité at Berlin; the maternal mortality was 3 per cent., that of the children 60 per cent., or excluding immature children 41·3 per cent. Combined version was most unfavourable for the children. Metreurysis yielded 18 live children in 21 cases. Cæsarean section is unnecessary and not to be attempted in private practice. The maternal mortality can be reduced to from 3 to 5 per cent. and the fœtal to from 10 to 20 per cent. without Cæsarean section. Combined version must be restricted to urgent cases. Metreurysis is remarkably effectual even in cases of most severe hæmorrhage. The results of vaginal Cæsarean section in cases of rigidity of the portio, and in primiparæ, have been satisfactory.

PFANNENSTIEL (the late) (*ibid.*) agreed as to the excellent results of metreurysis, but pointed out that in hospital practice Cæsarean section has to be taken into account when the mother desires unconditionally that the child should be born alive, or when the cervix has suffered in a way that renders its complete dilation by metreurysis impossible. J. J. M.

The treatment and prognosis of Placenta Prævia.

RICHTER (*Zentralb. f. Gyn.*, 1909, No. 22) gives the results of 83 cases of placenta prævia treated in the Dresden Frauenklinik during the years 1907 and 1908, which are of very great interest to private practitioners. The ruling priniciple was to deliver the woman as quickly as possible in the way most easy for her, and therefore by piercing the membranes. This proceeding, however, was only sufficient in 24 cases (29 per cent.). In 11 cases in which the child was viable the metreurynter was successfully used, five children being born alive and six dead. In 22 cases Braxton Hicks' version gave 3 live and 19 dead children. Altogether 39 children (47 per cent.) were born alive. Only one mother died in consequence of the means employed to deliver her; another died two days after the membranes had been pierced, owing to heart disease and pulmonary phthisis. The total maternal mortality therefore was only 1·2 per cent., and, as 61 mothers had a fever-free childbed, the total morbidity was only 26·5 per cent. Post partum atonic hæmorrhage occurred to a slight extent in 9 cases, and in one other there was serious bleeding from a cervical tear. J. J.M.

Metreurysis in Placenta Prævia.

B. KRÖNIG, Freiburg (*Zentralb. f. Gyn.*, 1909, No. 34), criticises the optimistic statements of Rieck and Zimmermann on the results of metreurysis in placenta prævia. He points out that in a work of Keetmann from the Greifswald Klinik, to which those authors have attached special importance, the mortality of the mothers is as high as 21 per cent. and that 6 of the 19 women had serious hæmorrhages on the expulsion of the metreurynter, and 8 others directly after delivery. The collected statistics of 6569 show a total mortality of 9·3 per cent.; one of 6·26 per cent. after Braxton Hicks' version; and one of 6·0 per cent. after metreurysis. Krönig therefore holds that metreurysis is not the only method of treatment that may be tried and for certain cases recommends Sellheim's Cæsarean section. J. J. M.

Placenta Prævia in the Boston Lying-in Hospital.

N. R. Mason (*Boston Med. Surg. Journ.*, 1909, No. 22) attributes success in the treatment of 155 cases of placenta prævia to early delivery rather than to any special method. The advantages of early delivery are as great for the child as for the mother. Hæmorrhages during the second half of pregnancy necessitate immediate examination of the lower segment of the uterus. In multiparæ rapid dilatation followed by version and extraction has proved safe and satisfactory for mothers and children. In primiparæ Cæsarean section should be performed immediately upon the onset of the hæmorrhage. J. J. M.

Ventral total Extirpation of the Parturient Uterus for Placenta Prævia with uncontrollable hæmorrhage.

M. Runge (the late), Göttingen (*Zentralb. f. Gyn.*, 1909, No. 31), in this article deplores the death of Pfannenstiel, on whose suggestion he performed a total ventral extirpation of the uterus, under lumbar anæsthesia, on a septipara who, in spite of the insertion of a metreurynter, appeared to be bleeding to death from placenta prævia. The child was already dead but the woman's life was saved. Runge himself was dead before this article appeared. J. J. M.

Rupture of the Uterus and its Treatment.

Petrén, Lund (*Monats. f. Geb. u. Gyn.*, Bd. xxx), on the basis of 754 cases previously published, discusses the ætiology, course and treatment of rupture of the uterus. Recovery took place in 32 per cent., but only in 28 per cent. of those cases (501) which were treated conservatively compared with 47 per cent. of the cases operated upon. The majority of incomplete ruptures were treated conservatively and the hopelessly moribund cases are included in that class. Petrén gives the histories of six cases of his own and concludes that the statistics of complete rupture are decidedly in favour of laparotomy. As a rule the uterus should be removed without hesitation; only in young and childless women need the suture of the laceration be entertained. The practitioner should remove the fœtus if this can be done without difficulty, and after tamponade and compression make arrangements for the operation to be performed as soon as possible either in the patient's house or in a hospital if she can be conveniently taken to one. J. J. M.

Operative Repair of Rupture of the Uterus by the Vaginal Way.

E. Solms, Charlottenburg (*Zentralb. f. Gyn.*, 1909, No. 34), for rupture of the lower segment of the uterus recommends a method of operation which, though more extended than Dührssen's colpocœliotomia anterior lateralis, is kept entirely extra-peritoneal in all cases in which the rupture is not complete. As yet he has only had three opportunities of performing it but thinks it may greatly diminish the principal dangers of rupture of the uterus, that is to say, shock, sepsis and hæmorrhage.

J. J. M.

Cervical Cæsarean Section.

H. F. Lewis (*Amer. Journ. Obstet.*, October 1909), after reviewing the literature of this subject for the past three years, discusses the present position of the operation. He has collected 102 cases with a maternal mortality of 8·8 per cent. and a fœtal deathrate of 8·6 per cent., and finds that in the majority of cases the indication for the cervical as opposed to the ordinary operation was the probability of pre-existing infection. "Does," he asks, "cervical Cæsarean section, either extra-peritoneal or trans-peritoneal, deserve a place in obstetric therapeutics? Is it better adapted for infected cases or probably infected cases, than the other means at our command?"

The advantages of the operation he considers to be, the lessened danger of hæmorrhage from the uterine wound, the less danger of contamination of the abdominal cavity with uterine contents, the better assurance of tight suturing of the thin walls of the lower uterine segment and cervix, and the decreased harm from post-partum hæmorrhage.

Criticising the 102 cases he finds that 14 cases were considered to be aseptic, and therefore cannot be considered in the light of the admitted chief indication for the performance of the operation. Forty cases were probably aseptic and in them ordinary Cæsarean section would have had no added danger. In eight cases the peritoneum was torn or cut, and in three the bladder was injured. In five cases there was severe infection after operation causing death, in three severe infection not causing death, and in 6 slighter infection occurred.

The author of the paper concludes from the evidence that it is not proved that cervical Cæsarean section is safer than the ordinary operation in the class of case for which it was primarily introduced. His reasons are :—

1. The peritoneum is much more resistant to infection than the cellular tissue.
2. Proper packing away of the general abdominal cavity ought to greatly diminish the chance of infection.
3. It is a more difficult and longer operation, and opens up large connective tissue spaces.
4. It often involves considerable difficulty in the extraction of the child, and
5. It leaves the uterus in an abnormally fixed position.

The treatment of Contracted Pelvis.

At the XVI. International Congress of Medicine.

J. Veit (Halle) thought that all obstetricians now admitted that no operation should be undertaken on a living child with the object of diminishing its size, unless there was decomposition of the uterine contents. Cæsarean section is a surer operation than hebosteotomy, and, when the choice lay between them, was to be preferred unless the genital secretions contained streptococci. Recent authors had tried to avoid interference during pregnancy (the induction of premature labour or prophylactic measures). Operations should not be performed except on direct indications.

Veit considered the absolute limit of contraction of the pelvis for Cæsarean section to be 7 cm. In moderate degrees of contraction, when the mother was in danger and the child was dead, embryotomy was a matter of course; but if the child were alive Cæsarean section or, in a limited number of cases, delivery by forceps. When the child's life was in danger and delivery by version or forceps was impossible, Cæsarean section should be performed. Any other operations were, though justified in exceptional cases, as a rule to be avoided.

Pestalozza (Rome) distinguished as impassable pelves those in which the length of the true conjugate was less than 75 millimetres, and as passable those in which it was greater; the size of the child's head, however, had to be taken into account. Spontaneous delivery occurred in 50 per cent. (? 80) of the cases of passable pelves. As operative methods of delivery we have forceps, pubiotomy and Cæsarean section. The high forceps should not be applied to the movable head; pubiotomy should not be performed on primiparæ, and is to be avoided when the pelvis is not symmetrical and when the woman has greatly distended veins, or a rigid os uteri. Extra-peritoneal Cæsarean section had no advantages over other methods of delivery.

Baisch (Münich) spoke in support of Doederlein's report which dwelt upon the successful results hitherto obtained in the treatment of contracted pelvis by hebosteotomy and their permanence. He held that the field of hebosteotomy had been greatly diminished by extra-peritoneal Cæsarean section. The infantile mortality of the former was 9 per cent., and he had lost one women out of 42 operated

upon. Hæmorrhage and sepsis were the dangers of the operation; with Doederlein's instrument injuries of the bladder could almost always be avoided. The operation was unsuitable when the true conjugate was below 7·0 cm., and in primiparæ with narrow genitals, but a proper one when the genitals were roomy and, therefore, chiefly in multiparæ. No other operation should be attempted before hebosteotomy. To wait afterwards for spontaneous delivery is to endanger the life of the child. Hebosteotomy and extraperitoneal Cæsarean section now enable us to avoid perforation of the living child except in infected cases. The decision as to the kind of the operation should never be left to the mother.

Frank (Cologne) said he had performed extraperitoneal Cæsarean section 46 times: twice on 4 women, and three times on 2, without opening the peritoneal cavity even in them. The incision should be made at the spot where the uterus threatens to burst, and no particular mode of incision should be adhered to capriciously; drainage should be provided when the asepsis is doubtful. He had never seen displacement of the uterus due to the operation. One woman who had undergone it was afterwards delivered spontaneously of an eight months child. Suprasymphysary delivery does not exclude either Cæsarean section or symphysiotomy. Of the latter operation Frank is a supporter when it can be done subcutaneously.

Latzko (Vienna) spoke of his own method of extraperitoneal Cæsarean section; he approaches the uterus to one side of the bladder.

Sellheim (Tübingen) described how he had devised his way of delivering a woman through a fistulous opening from the uterus through the abdominal walls, in order to find some way of preserving the child's life in infected cases. As the uterine cavity might itself become infected, the several layers of the abdominal wall must be most accurately united. He had not met with displacement or loss of mobility of the uterus due to the operation. J. J. M.

Missed Labour.

P. McEwan (*Lancet*, 1909, vol. ii, p. 1826). A multipara, age 26, ceased to menstruate in October, 1906, when signs and symptoms of pregnancy supervened. In May, 1907, there was a flooding followed by a slight reddish vaginal discharge, occasionally offensive, for ten weeks. She was in bed a few weeks and complained only of weakness. In October, 1907, she was admitted to hospital for an "abdominal tumour" the size of a seven months' pregnancy. There was also a brownish, slightly offensive discharge. The temperature was 103·6°F. and the pulse rate 130 per minute. The cervix was dilated with Hegar's, followed by Bossi's, dilators. The shoulder of the fœtus presented, and the uterine wall was felt to be intact. The fœtus was decapitated and delivered. A coil of small intestine now appeared in the vagina coming through a rent in the posterior part of the lower uterine segment. The abdomen was opened. A large flabby uterus, necrotic and adherent all round to various parts of the intestine, was exposed. The wall of the uterus was hardly thicker than stout brown paper except where the placenta, which was firmly adherent to and incorporated with the uterine wall, was attached. The necrotic wall had given way in several places. The upper part was adherent to the under surface of the liver. The uterus was dissected off from intestine and omentum. A portion of the uterine wall was too closely adherent to be removed, its surface being pared with scissors. The uterus and ovaries were removed. The abdomen was then closed, abdominal and vaginal gauze drains were employed. Notwithstanding stimulation and saline infusion the patient died of shock 15 hours later. Frank E. Taylor.

Methods of Accelerating and Inducing Labour.

Gache (*Travaux D'Obstetrique*, 1909), in an article on this subject, divides the possible methods into drugs and instrumental.

Under drugs he discusses :—

(*a*) Ergot. This he condemns in very strong terms, laying special stress on the fact that once administered its action cannot be overcome by any known drug. He mentions that in seven years he has seen 12 cases of ruptured uterus as a result of its administration to hasten delivery.

(*b*) Quinine sulphate. He points out that the uterine contractions brought on by this drug are intermittent as contrasted with the action of ergot. Quinine acts best on a uterus where the contractions have temporarily ceased. The dose is 1 gramme given in two cachets, which are administered at an interval of 10 minutes. Its action is manifest in from 10 to 30 minutes. There has been no trouble with post partum hæmorrhage in cases where he has given it, and he advises its use in all cases where speedy delivery is indicated on account of fœtal distress.

(*c*) Ammonium succinate. This drug is indicated where the uterine contraction is irregular or where there is spasm of the cervix. The action is rapid. The dose which he recommends is :

Ammonium succinate ... ... 1 gramme.
Water ... ... 140 grammes.
One tablespoonful every quarter-hour till the spasm ends.

He quotes cases where it has been advantageously used in the first stage of labour and also in cases of retention of the placenta from cervical spasm.

(*d*) Sugar, 30 grammes in 250 grammes of water repeated as often as necessary, was recommended by Bossi and Poyer to increase the strength of uterine contraction at the end of labour. It acts in about half an hour. Lactose was used by Keim in 25 gramme doses; it acts from 10 to 50 minutes. Gache found that vomiting was too frequent to make this a valuable drug and abandoned it.

(*e*) Glycerine. He mentions this but does not seem to have used it himself.

Instrumental methods. Various well-known methods, such as digital dilatation of the cervix, Dührssen's cervical incisions, withdrawal of amniotic fluid, injection of fluid between the uterine wall and the ovum, are mentioned and condemned.

Regarding the use of bougies, to induce labour, he thinks that other methods have supplanted them as they act too slowly and predispose to sepsis.

Hydrostatic bags are favourably mentioned, but much stress is laid on the difficulty of introducing a de Ribes' bag in a primipara.

The method which he enthusiastically commends in all urgent cases is by metal expanding dilators, such as Bossi's; and in a second article he gives his experiences of this instrument at the Rawson Hospital at Buenos Ayres. A three-fold action is claimed for this instrument when used slowly, viz., mechanical by its expanding limbs, by inducing an inert uterus to contract and by acting as a foreign body in the cervix.

His 23 cases comprise the following : Three cases of eclampsia—result favourable in each case to the mother; one child born alive, one dead and one not viable. Six cases of contracted pelvis. The cases chosen were those which were not sufficiently severe to require symphysiotomy but where the head was high and premature rupture of the membranes had occurred. In all six cases the mother did well; one living child was delivered by forceps, and four living and one dead by version. Advanced phthisis and heart disease—one case each, with satisfactory result to mother and child. Pernicious vomiting—one case; satisfactory result to mother, child not viable. Prolonged first stage from rigidity of cervix—three cases, with good result to mother and child. Fœtal distress—three cases, all satisfactory. Placenta prævia—three cases; good results to mothers, but only one living child. In one case he admits the after-coming head was caught by the cervix which prevented delivery although elsewhere he lays stress on the ease with which full dilatation can be obtained.

CLIFFORD WHITE.

Delivery by Rapid Dilatation of the Cervix.

Paul Bar, Paris (*L'Obstétrique*, September 1909), read a paper at the International Congress at Budapest, giving the present teaching in France on this subject. The methods in use are dilatation with Champetier de Ribes' bag, with the fingers by Bonnaire's method, or with some instrument such as Tarnier's *excitateur*. Bossi's dilator is little used. None of these methods give good results when used in the case of an undilated and resistant cervix; none of them acts without more or less tearing, and none gives space to bring through an average child at term. Slightly caricaturing Dr. Bar it may be said that these methods are of use only when they are not needed. Admitting that operative interference can rarely be carried out in the patient's home, Dr. Bar compares rapid dilatation with the cutting operations: (1) on the cervix, (2) classical Cæsarean section, (3) suprapubic extraperitoneal section, and (4) Cæsarean section with removal of part of the uterus. The so-called vaginal section is condemned on the same grounds as the rapid dilatation; the suprapubic operation is too recent for him to judge of its after results by experience, but *a priori* he is afraid that the wound of the lower uterine wall will lead to adhesions and weakness of the muscle likely to cause trouble in future labours. In cases of infection or if the child be dead or dying, rapid dilatation enters into competition with Cæsarean section, but each case must be decided on its merits. With the establishment of country maternities the Cæsarean section or some modification of it will become the operation of election. E. H. L. O.

Termination of Labour by rapid dilation.

At the XVI. International Congress of Medicine.

Bar (Paris) said that after rapid dilation the cervix should offer no resistance to the extraction of the child. The method had serious disadvantages, was not always effected without lacerations and did not always remove every obstacle to the passage of the head. It should only be performed on precise indications. Dilation with a bag or with the fingers, is less dangerous than Bossi's method. Vaginal Cæsarean section is an alternative proceeding. Operations to dilate the cervix are contra-indicated by a deeply-seated placenta, a contracted pelvis, or a very large child. If rapid delivery is directly indicated and the condition of the cervix unfavourable, classical Cæsarean section must be performed, or, if the case be infected, dilatation of the cervix unless contraindicated, if so extraperitoneal Cæsarean section.

Bossi (Genoa), after some remarks upon the design of his method, its history and the criticisms to which it had been subjected, described the technical details of his operation in regard to the introduction of the instrument, the dilatation, the position of the woman, and the extraction of he child. His mehod was most adapted for cases of eclampsia, and, less frequently, for placenta prævia. In a tabular form he displayed the results of his operation performed upon most diverse indications in 395 cases. In a second table he showed the results of accouchement forcé and Cæsarean section in cases of placenta prævia and premature detachment of the placenta, the maternal mortality of Cæsarean section being twice that of accouchement forcé, but the infantile mortality being only one-fourth. In a third table he compared the results of accouchement forcé and Cæsarean section in eclampsia. On the whole his own method seemed to be the best for mother and child.

G. Winter (Königsberg) distinguished between stretching and cutting methods for rapidly dilating the cervix. One could not count upon avoiding lacerations of the cervix in Bossi's method unless the cervical canal was completely taken up and the os externum at least as big as a shilling. In primiparæ the best method of vaginal cæsarean section was that of Dührssen. Winter pointed out that by it an expert operator was able to empty the uterus at any period of pregnancy without

danger, and that the vast majority of children were born alive. He discussed the various indications for the rapid termination of labour: eclampsia, after its onset or merely impending, premature detachment of the placenta, placenta prævia, pulmonary, renal, or cardiac disease, fever during labour, stenosis of the cervix, and delivery of a woman actually dying or dead. He considered that vaginal Cæsarean section was the best method of rapidly enlarging the neck of the womb, and eclampsia was the most important and commonest indication for such intervention.

Gauss (Freiburg), in a communication based upon 75 cases treated by Bossi's method and 50 by vaginal Cæsarean section, pointed out that, while the latter operation was hardly dangerous to life, it was by no means without disadvantages for primiparæ as subsequent labour was seldom uncomplicated. Of the patients delivered by Bossi's method one died and another suffered from laceration. He concluded that Bossi's method should not be employed early in pregnancy when the soft parts were not relaxed, nor in pregnancy at term when the condition of the portio was unfavourable. In hospital practice, under rigid indications Bossi's method was to be preferred, but when that was contraindicated, vaginal Cæsarean section should be performed. Outside of hospital, vaginal Cæsarean section should not be attempted, and placenta prævia contraindicated both these methods. J. J. M.

Cæsarean Section following an amputation of the cervix.

W. C. Studdiford (*Amer. Journ. Obstet.*, September 1909) reports a case in which the cervix had been amputated 2 years before. The patient spontaneously started labour and, although pains were severe, no dilatation took place. An attempt was then made to dilate with a steel dilator, but this had to be abandoned on account of the profuse hæmorrhage which occurred. Five or six hours later, in the continued absence of dilatation, although the pains remained strong, she was delivered by Cæsarean section.

The reason for the marked cicatrization was considered to be the fact that the cervix had probably been amputated too high up. J. J. B.

Vaginal Cæsarean Section.

W. H. Sprigg (*Amer. Journ. Obstet.*, October 1909) records four cases in which he performed vaginal Cæsarean section. He gives as the indications for the operation:—

(α) When the life of the mother or child is in grave danger and the uterus must be quickly emptied, in which the cervix is rigid and unyielding.

(β) Where manual or instrumental delivery is sure to be attended by lacerations, as in carcinoma of the cervix, and stenosis of the cervix either from a rigid os or from scar cicatrisation.

The author lays stress upon the importance of immediate delivery in cases of eclampsia, and considers cervical Cæsarean section to be productive of less shock than manual dilatation and extraction, and also to be less favourable to septic infection. He also recommends the operation for cases of placenta prævia, and concludes with an account of the technique which he himself employs. He remarks also upon the moderate amount of bleeding which usually attends the operation.

J. B. B.

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

Obstetrical and Gynæcological Section.

Meeting held November 11th, 1909, Dr. Macnaughton-Jones (*President*) *in the Chair.*

Dr. A. E. Giles showed a specimen of

Ovarian Adeno-Carcinoma

weighing 18 lbs., removed from a widow, æt. 60. Also, one of

Kraurosis of the Vulva

of an advanced type, in which a small nodule of carcinomatous growth was just beginning.

Dr. T. G. Stevens showed a specimen of

Adenomyoma of the Vaginal Wall,

consisting of two tumours, one situated on the anterior, and the other on the posterior vaginal wall. Both contained cystic spaces lined by columnar epithelium, and he thought from their position and structure that they must be derived from displaced Wolffian tubules.

Also a specimen of

Fibromyoma and Pregnancy with Extensive Thrombosis of all the Veins of the Capsule and Necrobiosis of many Areas of the Tumour.

Dr. H. J. Paterson read a short communication on a

Case of Rupture of the Uterus Treated by Suture of the Rent per Vaginam and Drainage.

The patient, a terti-para, after premature rupture of the membranes was found to have a prolapsed pulseless cord. Delivery was effected by traction on the foot without difficulty, but on introducing the hand into the vagina after delivery it passed into the abdominal cavity. On admission to the Temperance Hospital, the patient was profoundly collapsed. The vagina was full of blood clot, and a coil of intestine was felt protruding through a large rent in the vaginal vault, through which the fist could be easily passed into the peritoneal cavity. The left parametrium was involved in the tear, and there was free bleeding from two large vessels. These were secured by ligature. Further examination showed that the cervix and lower uterine segment were torn through for four inches, but as the uterus appeared firmly retracted, no attempt was made to define accurately the upper limit of the tear. The torn edges of the cervix and lower part of the uterus were approximated by three catgut sutures. A large rubber drainage tube was passed into Douglas's pouch and the torn edges of the peritoneum and the vaginal wall were drawn together round it by a purse-string suture. The patient was much collapsed at the end of the operation, but continuous saline proctolysis was maintained for 60 hours, and she ultimately made a good recovery. Dr. Paterson said, as far as he knew, this method of vaginal suture and drainage had not been adopted in any of the recorded cases of rupture of the uterus. He thought that some writers laid too much stress on the difficulty of controlling hæmorrhage and Nature's ability to deal with internal hæmorrhage. Suture when possible was to be preferred to hysterectomy, and the cases recorded seemed to show that some of them had recovered in spite of hysterectomy, rather than on account of it.

Drs. Comyns Berkeley and Victor Bonney read a paper on

Leukoplakic Vulvitis and its Relation to Kraurosis Vulvæ and Carcinoma Vulvæ.

The authors pointed out that leukoplakia and kraurosis were two distinct diseases, which could be identified quite easily, both from clinical observation and a pathological examination of the tissues affected. The authors based their paper on the series of 24 cases which they had operated upon and 75 which had occurred in the practice of their colleagues at the Middlesex Hospital and Chelsea Hospital for Women. The authors pointed out that leukoplakia can be differentiated clinically from kraurosis :—

1. By its appearance, which is quite different from that of kraurosis.

2. By its distribution, in that it never affects the vestibule, orifice of the urethra, or vagina, whereas in kraurosis these areas are always affected; and whilst in the latter disease the outer surface of the labia majora and the skin of the thighs and the perinæum in their neighbourhood are never affected, in the former disease it is often involved.

3. By the symptoms, for whereas the striking and often the only symptom of leukoplakia is pruritus, this symptom is absent in kraurosis, whilst dysuria and dyspareunia are most marked.

4. By its relation to carcinoma. Leukoplakia is often followed by carcinoma of the vulva, and in every case of this disease which the authors had seen leukoplakia had been present, whilst kraurosis had no relation to carcinoma.

5. By its histological findings. It will be seen that in leukoplakic vulvitis there occurs a diffuse thickening of the epithelial elements with a marked tendency to downgrowth, as exhibited by long inter-papillar processes. The underlying connective-tissue is at first the seat of a lymphocytal aggregation, which leads on to a diffuse fibrosis with a total disappearance of yellow elastic fibres in the zone immediately underlying the epithelium. In kraurosis the epithelium is abnormally thin, especially over the red patches seen in that disease. Polymorpho-nuclear leucocytes and massive aggregations of plasma cells are seen, whilst lymphocytes are comparatively sparsely represented. The connective-tissue becomes the seat of an atrophic cell proliferation, no disappearance of the yellow elastic tissue occurs.

The authors lastly discussed the relationship of leukoplakia to carcinoma, including multiple carcinoma of the vulva, recurrences of the growth, and glandular metastases.

With regard to treatment the authors were strongly of the opinion that all the cases of leukoplakic vulvitis should be treated by excision, because this disease in their experience had been so commonly followed by carcinoma.

The paper was illustrated by a series of micro-photographs demonstrated by the epidiascope.

Dr. A. E. Giles said that there was no evidence in any case of kraurosis which had come under his notice of a history of either syphilis or tubercle, but he regarded the condition as an atrophic one incidental to the general atrophy affecting the pelvic organs at the menopause.

Dr. Amand Routh agreed that the authors had brought forward very strong arguments in favour of their contention that leukoplakia and kraurosis vulvæ were essentially distinct conditions, capable of easy clinical differentiation. If their contention were correct all modern text-books were wrong, for without exception they described the two conditions under one name—kraurosis vulvæ.

According to the authors, in leukoplakia, pruritus was the main, often the only, symptom, neither the vestibule nor the urethral orifice were ever attacked, but the disease tended to spread over the inner thighs, perinæum and anus, and there was no tendency to contraction of the vaginal orifice. Epithelioma of the vulva very often

followed this condition. In krauosis vulvæ, on the other hand, there was no pruritus, and dyspareunia was the main symptom. The vestibule and urethral orifice was always attacked, the thighs, perinæum and anal region never. The vaginal orifice always became contracted, and carcinoma never developed on the vulva in kraurosis.

He described a case, however, to prove that if leukoplakia and kraurosis were not two stages of the same disease, they sometimes co-existed.

As regards treatment, he had found that the continued application of equal parts of unguentum hydrargyri and unguentum zinci or unguentum plumbi acetatis almost always relieved the pruritus and made the tissues softer and pinker, but the condition was apt to recur. He had not seen any case with a definite history of syphilis.

Dr. W. Eden said that there was nothing inherently improbable in the idea that leukoplakia was a condition antecedent to epithelioma, for this sequence had been recognized for long in the tongue. He could hardly follow the authors in their recommendation to excise all patches of leukoplakia, since this condition was not at all uncommon, while the malignant transformation described in the paper was comparatively rare.

The President, Dr. H. Macnaughton-Jones, said that the last edition of his text-book was open to the criticism of Dr. Routh, for although the views of many authorities were epitomized, there was no mention of leukoplakia. The two conditions were dealt with under the one term, kraurosis. His experience led him to regard discharge—both uterine and vaginal, and senility, as important factors in the ætiology. No patient he had treated had he known to suffer from carcinoma subsequently. He believed in free excision of the "wash leather" areas, though not to the exclusion of other therapeutic measures such as the application of pure carbolic acid and the use of a 5 per cent. solution of nitrate of silver. He also recommended adrenalin, the use of lanolated ichthyol ointment, and yellow oxide of mercury, with emollient baths, followed by the application of the nitrate of silver. He quoted two cases cured by excision and transplantation of sound skin, combined with the use of the remedies mentioned. He believed that while nothing save excision would suffice in certain cases, yet in others cure could be effected without resource to this severe measure.

Dr. Comyns Berkeley, in reply, said that the discussion of his paper had mainly had reference to two points—namely, the ease or otherwise of the diagnosis of these two conditions and the question of the treatment of leukoplakic vulvitis by excision. In reality the two diseases were easy to diagnose, and it was their marked difference which had drawn his and Dr. Victor Bonney's attention to this subject. With regard to treatment, they were convinced that the proper treatment was to excise the diseased areas. He had had the unusual experience of operating upon 18 cases of carcinoma of the vulva, all associated with leukoplakia, and at least three of these had been subjected to prolonged treatment for the leukoplakia. He saw no reason why leukoplakia and kraurosis should not occur in the same patient.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Ordinary Meeting held at Liverpool, Friday, October 15th, 1909, Dr. J. W. Martin *(Sheffield), President, in the Chair.*

Miss Ivens (Liverpool) read notes of five cases of tuberculous salpingo-oöphoritis. In four the disease was apparently primary in the tubes; in the fifth there was an associated bone lesion. The ages varied from 20 to 36. Dysmenorrhœa was the only symptom common to all. Dysuria occurred in four cases, and menorrhagia in three. In no case was the uterus removed, though both tubes were extirpated in each case.

A portion of ovary was left in all but one case. In all there had been an immediate and maintained good result, with gain in weight and freedom from pain. In one tuberculous peritonitis developed, but subsided after tuberculin treatment.

Dr. Arnold Lea (Manchester) read a short paper on

Gastric or Duodenal Ulcer as a Cause of Pelvic Peritonitis.

He related three cases of pelvic peritonitis which had developed in patients suffering from symptoms of gastric or duodenal ulcer, and called attention to the possibility of perforating ulcer being a causal factor in the production of the disease. Two of the patients were single, one was married but sterile. In all the usual sources of ascending affection could be excluded. In each instance there was a history of long continued dyspepsia, which was followed by a severe illness with symptoms of general peritonitis, apparently due to rupture or leakage of an ulcer. It is well known that in perforation of a duodenal ulcer the fluid tends to flow into the right iliac fossa, and into the pouch of Douglas. If no operation is performed and the patient is able to withstand the peritonitis which follows, the fluid will tend to collect on the floor of the pelvis. This may undergo complete absorption, but it is possible that the inflammatory reaction which ensues may result in the formation of adhesions around the uterus and appendages. In these cases the uterus was found, at the operation, to be firmly adherent to the pelvic floor with a variable degree of perimetritis and fixation of the appendages. Ventro-fixation was carried out with relief to the pelvic symptoms.

Dr. Leith Murray (Liverpool) read a paper on the anti-autolytic action of blood serum and its relation to

Hyaline Degeneration of Uterine Fibroids,

which appears in full in this number of the Journal.

Dr. A. J. Wallace (Liverpool) showed a uterus and vagina removed for carcinoma of the cervix extending over the whole of the anterior vaginal wall. The anterior vaginal wall was red, raw-looking and uneven. It appeared to be covered with simple granulation tissue which had replaced the transverse rugæ. Where this raw-looking surface met the sound vaginal and vulvar mucous membranes, actual loss of tissue could be observed. The anterior vaginal wall, altered as it was, felt quite soft to the touch and did not bleed unless strong pressure was applied. Neither did it present that vicious appearance which is associated with malignant change. The portio had a similar appearance but the tissue of the posterior lip was friable and bled readily. The body of the uterus was normal in size, shape, position and mobility, and there was no parametric infiltration. Small pieces of the cervix and the vaginal wall were examined by Dr. Leith Murray, who reported that "both show complete infiltration with columns of malignant carcinomatous cells." The vagina was first separated from below, and its lower end invaginated and closed by a double layer of sutures. The operation was completed by the abdomen, an ordinary pelvic dissection being performed. The pelvic glands on the left were enlarged and were freely removed. Those on the right side were much enlarged and too intimately adherent to the iliac vessels to justify removal.

The following specimens were shown :—

(1) *Extreme degree of hydrocephalus*, by Dr. A. J. Wallace.

(2) An example of a rare fœtal monster—*Symelus*, by Dr. J. E. Gemmell.

EDINBURGH OBSTETRICAL SOCIETY.

Meeting held Wednesday, 10th November, Professor Stephenson (*Aberdeen*), *President, in the Chair.*

The retiring President delivered his valedictory address, in which he surveyed the work of the Society during his term of office, and made appreciative reference to those Fellows who had died during that period.

Dr. J. W. Ballantyne moved a vote of thanks to the retiring President for his services in the chair.

The new President, Dr. F. W. N. Haultain, then took the chair.

Dr. H. M. Church read a paper on

Rheumatoid Arthritis,

claiming a puerperal cause for most cases. He gave a clinical record of two cases which he had studied for twelve years. In one the disease came on after a confinement at the full time, in the other after a miscarriage at the second month. In both the system had been weakened by influenza and shock, which predisposed to a microbic invasion from the genital tract. He pointed out the relation that exists between rheumatoid arthritis and other chronic spinal arthropathies and conducted his enquiries on the lines recently initiated by the Cambridge Committee appointed for the study of special diseases. Gout, osteomalacia, and rheumatoid arthritis were compared.

In regard to treatment, iron taken internally and kataphoresis with iodide of potassium did good. In rheumatoid arthritis a generous diet with butcher's meat was essential and whatever treatment enriched the corpuscular elements of the blood.

The retention of phosphorus in the system and therefrom the production of greater hardening of the bones after removal of the ovaries, as shown from experiments upon animals, opened up far reaching questions.

As regards post mortem appearances, he referred to a case in which eighteen months after the onset of rheumatoid arthritis following a miscarriage, there was found sclerosis of the posterior columns of the cord in the dorsal, and of the columns of Goll in the cervical region.

The paper was preceded by the exhibition of a metal penholder eaten through by the sweat from the finger of one of his rheumatoid cases, and the writer thought that the presence of a hypothetic acid, which the American physicians, Drs. Herder and Baldwin, believe to be pathogenic of the disease (found in the urine in every acute case), might be a factor in the erosion of the metal.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Session 25, Wednesday, October 27th, 1909.

The President (Dr. Munro Kerr) gave an address upon

Advances in Gynæcology in Recent Years.

Dr. Munro Kerr first referred to the honour conferred upon him in electing him President of the Society. He then reviewed the advances in gynæcology that had taken place in the last 15 years, and pointed out that in both scientific and practical gynæcology great progress had been made.

On the scientific side, for example, there now existed an exact knowledge of chorion-epithelioma, of varieties and progress of extra-uterine pregnancy and the degeneration of the fibro-myomata; while, on the practical side, hysterectomy had been perfected, and most extensive operations were performed for malignant disease of the uterus had been followed by most satisfactory permanent cures.

He next referred to the improvement in general technique, and was of opinion that rubber gloves had contributed to the lessening of septic infection. He referred to the various methods of cleansing the abdominal wall prior to operation, and to the various abdominal incisions employed. The subject of drainage tubes and ligatures was also touched upon.

As regards the after-treatment, he was convinced of the great benefit of the continuous saline rectal infusion, and he attaches great importance to a most careful anæsthesia, especially in all prolonged abdominal operations.

He then referred to the most satisfactory results following hysterectomy in all cases, except carcinoma of the cervix; in these latter he still regretted that the immediate mortality was very considerable.

As regards extensive suppurative conditions of the adnexa, he was convinced that the soundest treatment consisted in removing the uterus along with the diseased appendages. In malignant disease of the ovaries he also advocated the removal of the uterus.

Other conditions, such as extra-uterine pregnancy and ovariotomy, were briefly referred to, and the progress that had been made in dealing with these conditions.

The most disappointing results were those that followed minor ailments, displacements, chronic metritis, etc. He pointed out how very disappointing this was, because almost all these ailments could be prevented by a more satisfactory obstetric practice.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

Section of Obstetrics.

Meeting held November 5th, 1909, Dr. H. Jellett (*President*) *in the chair.*

Exhibits.

Dr. E. Hastings Tweedy exhibited a specimen of *Multiple Myoma of the Uterus.* In such cases one would, if possible, perform a myomectomy. But in the case before them it would have been very difficult, as the uterus was absolutely riddled with tumours. It appeared as a smooth myomatous uterus, but on splitting it they could hardly see any muscular structure, and each one of the two or three hundred myomata was absolutely distinct, some degenerating, some not. The patient had a temperature, and microscopic specimens had the appearance of malignancy, but Dr. Rowlette told him he could find no malignant disease.

Dr. Tweedy exhibited a specimen of an *Ordinary Wertheim's Operation in a girl about twenty-four years of age.* There was very considerable ulcerative cancer spreading into the broad ligament. The operation went well until he began to remove the cervical part of the uterus. The cancer then broke away, and he got the end of the vagina. He was able to shut off the intestines, and the woman did not become infected. What was particularly interesting was that he traced up the ureter, and found that while the cancer spread above and below the ureter it was not diseased. The ureter was so intimately associated with the cervix that in dealing with it one had to hug the cervix to avoid the ureter. He pushed down the bladder far into the vagina, and got his finger between the vagina and bladder. He worked the bladder laterally, and was able to dig the ureter completely out of the cancer, and took away the microscopic evidence of the disease. That was three weeks ago. The patient had gone on very well until a week ago, when her temperature ran up, and a fœtid discharge arose. Though she could now hold a certain amount of urine in the bladder, still a quantity passed away, and he had no doubt he was now dealing with a ureteral fistula. In the majority of cases such fistulæ healed so that the ureter practically never became patent again. The urinary discharge would dry up. The ureter cicatrized, and the kidney ceased to secrete. They would only get a hydronephrosis so long as there was some fluid passing through the ureter. If they did not allow a drop to escape through the ureter, the kidney would not secrete urine; and his hope was that the cicatricial matter would absolutely occlude the ureter, and the kidney would become inert.

Sir William Smyly said ureteral fistula was a risk that anyone was liable to who undertook Wertheim's operation. Recently, when assisting in a case where the ureter had been cut accidentally and where implantation into the bladder was impossible,

he had persuaded the operator to ligature it with silk and fix it in the abdominal wound. In that case it was found necessary afterwards to extirpate the kidney.

The PRESIDENT OF THE ACADEMY said he had once transplanted the ureter into the bladder, and as far as he knew no leakage occurred, and no obvious kidney tumour developed. He would be interested to see the result in Dr. Tweedy's case, as it was difficult to understand why hydronephrosis should not occur when the ureter was completely blocked when it occurred where the obstruction was only partial.

The SECRETARY recalled a case of Sir Arthur Macan's in which the urine continued to be secreted as freely as ever from the kidney belonging to the detached ureter, and showed no sign of cicatrization of the cut end of the ureter, or blocking off of the kidney.

The PRESIDENT said one could understand that there was a kind of race between the function of the kidney and the destruction of the substance by back pressure, and would be inclined to think that hydronephrosis would result before the destruction of the kidney substance.

Dr. TWEEDY, in replying, said that he had in his remarks exactly summed up the conclusion of the experiments that he had read, the last being from the Johns Hopkins Hospital within the last six months. The ureter was simply cicatrized over, there was no patency, and the kidney ceased to secrete. Sir William Smyly's case was not on all fours with the condition of spontaneous healing. It was almost impossible to get the ureter to unite permanently by tying.

Dr. PUREFOY exhibted a specimen of *Pyosalpinx*, which had reached a very considerable size in a short time, and had arisen under circumstances which made its origin difficult to account for. The patient had been married several years, and was childless. She had lived abroad, and had had malarial fever and other illnesses incident to residence in a tropical climate. She came under his care for a trifling catarrh of the uterus, and became, as he believed, cured. She went to the country for a few weeks, where she was attacked with what she thought to be malarial fever, with severe abdominal pains and tenderness. On her return to town it was quite easy, on palpation, to find a tumour, having its origin from some of the pelvic organs. He waited for six weeks before operating. On opening the abdomen a rounded tumour came into view completely concealing the uterus, to which it was extensively adherent. In separating it, to his great distress the sac ruptured, and a quantity of pus escaped. He was, however, happy to add that the patient had an uninterrupted recovery. There was no ground for thinking the condition to be due to any gonorrhœal affection. There was no evidence of tubercular disease, yet he took it that it originated in tubercular salpingitis. She had no signs of tuberculosis, but her family history was unfavourable.

Dr. TWEEDY said it seemed to him worthless to leave a uterus that could be of no use when the tubes were gone. When a tube burst, and pus flowed into the pelvis, it was largely a matter of chance whether the patient would recover. If the pus was septic, he knew of no way to avoid the giving of sepsis. If there was any doubt as to the nature of the pus, it would, he thought, be safer to cut away the uterus, and the tube at the other side: this would have provided a large hole for free drainage. That hole and the vagina should be packed with a large quantity of iodoform gauze, and the gauze spread out right over the pelvis where the pus had flowed, and where the intestines would come the moment the patient was moved out of position.

Sir W. SMYLY said he had taken out one tube, and the woman had become pregnant afterwards. He did not think it good practice in every case to remove both tubes and uterus, but where there was soiling of the pelvis and where both tubes had to be removed, he considered it good practice to remove the uterus also.

Dr. HORNE said he had recently adopted the practice recommended by Dr. Tweedy

in a similar case; the patient did very well up to the fifth day, when she complained of pain in the region of the heart, and rapidly sank in a few hours; he wished to ask Dr. Purefoy what treatment he adopted when the pus escaped into the abdominal cavity?

The PRESIDENT thought it difficult to say positively that the case was tuberculous, and he suggested that it originated as one of extra-uterine pregnancy, and that a hæmatomata formed in it and suppurated. He was afraid he was in a minority in thinking it good practice to leave the uterus even if both tubes were removed. If any portion of the ovaries was left behind, menstruation would continue, which was an important matter from the point of view of the mental comfort of the patient.

Dr. PUREFOY, in reply, said it was possible to lift the tumour out of the abdomen to some extent. He had packed the surrounding area with sponges, and the patient escaped contamination from the fact that the adjacent structures had been protected, and the point of exit was outside the incision, and somewhat out of the scene of operations. His recollection was that there was no palpable disease of the other tube, and the case was so serious that he was glad to avoid any unnecessary removal of other parts, and to conclude the operation so far as was compatible with the safety of the patient.

The PRESIDENT delivered an address on

THE TEACHING OF PRACTICAL MIDWIFERY IN THE PAST AND AT THE PRESENT TIME.

Afer giving a *précis* of the past history of the teaching of practical midwifery, the President discussed the probable effect of the recommendations of the General Medical Council on the future of such teaching. The recommendations of the Council are only recommendations, and, as such, can be ignored in part or in whole by the licensing bodies. Some idea as to the probable attitude of the latter can be gleaned from their criticisms of the first report of the Practical Midwifery Committee of the General Medical Council, and in these criticisms there is manifest an extraordinary divergence of opinion. The majority of the London Medical Schools consider it quite impracticable to insist on regular attendance upon the indoor practice of a lying-in hospital. The majority of the Scottish licensing bodies, and of the English Universities, and all the Irish bodies, view the proposal with approval. The University of Manchester expresses "unqualified approval of the recommendation that certificates of attendance on labour shall be accepted only from a member of the staff of a public lying-in hospital, or of the maternity charity of a general hospital." The University of Birmingham considers that "general practitioners should not be altogether excluded." The Professor of Midwifery at Bristol University College considers "that practitioners who have received their education in lying-in hospitals only are not so reliable as those who have been taught in extern maternity." The Professor of Midwifery in St. Mungo's College, Glasgow, is "of opinion that a student will learn more by attending in the wards of a hospital and seeing cases properly conducted than by attending scores of cases in their own homes." These are only a few instances taken at random, but they serve to show the differences that exist. It is probable—indeed, almost certain—that the large Universities whose supply of students is constant and independent of minor alterations in the curriculum, will adopt the recommendations of the Council in their entirety, while licensing bodies who are, so to speak, competing against one another for students, will endeavour to present their curriculum in as attractive a form as possible. Similarly the schools which consider the recommendations impracticable will doubtless continue to do so until the licensing bodies to which the schools act as feeders demonstrate their practicability by making them essential.

Here, in Ireland, we are principally concerned with the actions of the Irish licensing bodies, and, so far as I am aware, the Conjoint Board of the Royal Colleges

have so far alone modified their regulations. Their alterations are thus of considerable interest as foreshadowing to some extent the possible action of other bodies.

Before referring to them, it is necessary to state that for many years past in Ireland the regulations for the teaching of practical midwifery have been sufficient, if the student chooses to benefit by them. Instead of its being possible to become qualified after seeing 20 cases of labour and conducting 5, the Irish student had to attend for six months in a maternity hospital, and to conduct some 20 cases. I emphasize this point because there is a danger present that the efforts of the General Medical Council to produce a leavening up of midwifery teaching in England and Scotland may result in producing a leavening down in Ireland, and, indeed, we shall see that, in the case of the Irish Colleges, already it has been decided to reduce the course in a maternity hospital from six to three months in order to bring it into closer conformity with the recommendations of the Council.

The regulations of the Colleges which have been agreed on after a prolonged discussion, and which will shortly come into force, are as follows :—

(1) Every student before beginning the study of practical midwifery must have attended a course of lectures on midwifery, and must have held the offices of clinical medical clerk and of surgical dresser.

(2) Every student must attend the indoor practice of a lying-in hospital, or in the lying-in wards of a general hospital.

(4) All certificates testifying that the student has complied with the above regulations must be signed by a medical member of the staff of a lying-in hospital, or by a medical member of the staff responsible for the management of the maternity wards of a general hospital.

The foregoing regulations are admirable in many respects, but in one particular they are retrograde. It was unwise from every point of view to reduce the course of hospital teaching from six to three months. It was unwise from the point of view of the student's education, because a three months' period is insufficient, and it was unwise from the point of view of his comfort, because it would be easier for him to obtain the necessary number of cases and the necessary hospital attendance in a period of six than in one of three months. On the other hand, it is most important to have obtained a definite pronouncement that the student must attend at the regular clinical instruction delivered in the wards of a hospital.

What the action of the other Irish licensing bodies may be remains to be seen. I trust that it will be in the direction indicated by the regulations of the Royal Colleges, but that there will be no shortening of the periods of hospital attendance. It is for the Irish school to improve and to increase its present standard, and not to let itself forget that what may be improvement in other teaching centres may be retrogression in Ireland.

There is just one other point to which I would like to refer before I finish. The General Medical Council, in their final recommendation to the licensing bodies, added to the recommendations already mentioned another to the effect that it is necessary for the licensing bodies "in the public interest" to establish clinical and practical examinations in midwifery and gynæcology in connection with the qualifying examinations. At first there was considerable uncertainty as to the practicability of such a scheme, but when it was examined closer it was found to be quite workable. Trinity College and the Royal Colleges have already adopted it, and in future all their students will have to present themselves for such an examination. Its value, if it is properly carried out, is undeniable, and it remains with the examiners to see that the examination is a reality.

If we contrast the present state of affairs with what existed in 1888, we shall see what a great advance there has been in the teaching of midwifery, and this Section of the Academy, as a Section, and many of its members individually, have had a

great share in this. In 1888 it was impossible for any student who merely followed official requirements to acquire a sufficient knowledge of obstetrics before he was qualified to enable him to undertake the care of the average case of labour. At present, under the new regulations, it is possible for most students to obtain the necessary knowledge. It must be the object of the future to ensure that it is impossible for him to become qualified without such knowledge.

The PRESIDENT OF THE ACADEMY said the questions raised were of extreme importance. As a member of the General Medical Council he had a good deal to say to the whole question, and the chief difficulty experienced by the Council was that of proper hospital teaching. In Dublin they were singularly fortunate in that respect, but some of the provincial towns—and even London—were not so fortunately situated, and the principal opposition to the recommendations had come from the licensing bodies, who did not see their way to get such education for their students. Some persons thought the recommendations should have gone further than they did; but some of them, it could not be doubted, would lead to better education. Those of the Council who were not gynæcologists and obstetricians were very strong on the point that students should be clinical clerks and surgical dressers before taking up practical midwifery, so that they might obtain a reasonable amount of teaching in the practice of antiseptics. The General Medical Council could only make suggestions; but their experience was that while some of the recommendations were kicked against at first, they were usually carried out. It had never been necessary for the Council to exercise its power to report the non-adoption of recommendations to the Privy Council, an action which might lead to the degrees of the particular body not being registered. He believed that the recommendations would in time be carried out and strengthened, but they had to move slowly.

Dr. KIDD said he agreed with the President of the Section that a period of six months was one which allowed the student to obtain the necessary knowledge with greater ease than if it was reduced to three months. He thought an alternative might be made with regard to the period spent as an intern in attending a lying-in hospital. A man living inside the walls of a maternity institution saw everything that was going on, he lived in an obstetric atmosphere. If attending as an extern student two nights in the week, whether he saw a case or not, it was difficult for him to devote his attention to lectures next morning. He thought too little attention was paid to the taking of ample notes of cases either in the house or extern, and it should be the duty of assistant masters or clinical clerks to see that notes were taken and signed by the officer of the institution before credit was allowed for the case. When the question of the clinical examination had first come under his observation, he had hesitated as to the feasibility of its being made practical or practicable; but experience had shown him that the difficulties which he had conjured up were to a great extent imaginary. A practical test was quite feasible as regards palpation, and the general conditions in the puerperium and questions could be asked to supplement the history that the student gave. He was disappointed in the note-taking.

Dr. TWEEDY thought it was a hardship on the student to cut down the course of instruction to three months. But there was one safeguard in the rules that had lately come into force, which had put the new rule ahead of any of the older forms—the rule that a student had to attend thirty-two times within three months. That rule made it impossible for a maternity hospital to give a three months' course on a one month's residence.

Dr. GIBSON thought the period, instead of being reduced, should be raised to twelve months. But if a man lived in a hospital for one or two months, he would learn far more than from attending twice a week for half a year, and should be spared further attendance.

The SECRETARY agreed with Dr. Gibson. Even in six months, of two nights a week, he did not think one would see a quarter of the number of cases which one would see if resident day and night.

The PRESIDENT OF THE ACADEMY rose to accentuate what Professor Kidd had said about notetaking. The same thing applied to all other branches of the profession, and the result was that, while their students could hold their own as far as practical subjects were concerned, in competition for the services, they were very much behind English and Scottish students in the reports of a clinical case, and the commentary on a hypothetical case which formed part of the Army Medical Examination.

The PRESIDENT, in reply, said he recognized the difficulties that existed, and the necessity for advancing with caution and care. They might all agree that the caution and care had been very well marked in the past, and trust that advance in the future would be characterized by more boldness. It seemed to him that for the qualified man there was no question that one month inside was better than three outside, but he doubted whether the average student could assimilate what he saw, as he could if it was spread over a longer period. He was therefore more inclined to agree that the time should be extended to a year. Everyone recognized the practical examination as a great step forward, and the marking should in an entirely new departure, be lenient at first.

REVIEWS OF RECENT BOOKS.

Ueber die Behandlung der Geburten bei engen Becken. Von Dr. E. Scipiades, Assistenten der Zweiten Frauenklinik der Königl. Ung. Universität in Budapest. 8vo. ($10\frac{3}{4}\times7\frac{1}{2}$). Pp. 248. Berlin: S. Karger. 1909. Price M. 7.

This monograph appeared in the Hungarian language in 1906, and the author explains that he now publishes it, in spite of the delay entailed by translation into German, because the conclusions arrived at were given in the *Monatsschrift für Geburtshülfe und Gynäkologie* (Band xxvi, Ht. 3 and 4) and he thinks it desirable to make known the material upon which those conclusions were founded, and also because in discussing an article by Dr. Baisch on the classification and prognosis of the different forms of contracted pelvis (*Zentralblatt für Gynäkologie*, 1907, No. 22) he alluded to the present work and its appearance in German; an additional reason is that at Professor Tauffer's Klinik, except for some modification in regard to hebosteotomy such as might be expected from the many successful cases reported from various quarters and those performed in the klinik itself, the standpoint held as to the treatment of labour in contracted pelves remains unaltered.

The first part of the work is devoted to the literature of the subject, and Scipiades finds it beset with difficulties: as regards the definition of what constitutes a contracted pelvis, even if the length of the conjugata vera be accepted as a criterion, we have no means, at once simple and reliable, of estimating it; no simple method of classification, with regard to the treatment of the various kinds of deformity met with in practice, has been formulated; no definite principles of diagnosis have been accepted to obviate the descriptions of one and the same pelvis varying greatly according to individual opinion; not only are different views held as to classification but wide distinctions are drawn within the classes. It is therefore remarkable that while the estimations of the prognosis of labour in the various degrees of contraction by different authors show but slight variations, those as to the proper methods of treatment vary greatly, if not theoretically, at all events as practically applied. In the fourth degree, Cæsarean section as an absolute indication is generally accepted, but the induction of abortion is disputed. In the third degree, strife goes on as to the propriety of induced abortion, induced premature labour, symphysiotomy, and conservative Cæsarean section; in the treatment of the first and second degree, far the most important for the practitioner, prophylactic interference contends with expectant treatment; it is, however, remarkable that expectant treatment (including the use of the high forceps) is much more prevalent, and that while many instances of the use of high forceps are recorded, we hear of few cases of prophylactic version.

Scipiades founds his conclusions upon 949 cases of contracted pelves occurring in Professor Tauffer's klinik during the ten years 1895—1904, among a total of 6,877 cases of labour (no abortions) (13·8 per cent.).

(1) Nearly three-fourths of all births in cases of contracted pelvis were spontaneous, but of such spontaneous births nearly twice as many occurred in contractions of the first degree as in those of the second.

(2) There is no difference between the prognosis in primiparæ and multiparæ, in contractions of the first degree; in contractions of the second degree, spontaneous delivery occurred one-third more frequently in primiparæ than in multiparæ.

Within possible limits for spontaneous delivery (conjugata vera = 8 cm.) the prognosis for the mother on the spontaneous birth of a mature child (3,000 gm. and 34 cm. round the head) is the same for a multipara as for a primipara. Under these circumstances, whether for primiparæ or multiparæ, the prognosis is best for the flat

pelvis, not so good for the generally contracted, and worst of all for the generally contracted and flat pelvis, but, generally, taking the various kinds of deformity, the prognosis is as follows : in primiparæ the flat and in multiparæ the flat and generally contracted pelvis (with the probability of spontaneous delivery in 89 : 87 : 84 per cent.) and similarly (but 12 per cent. more unfavourably) in primiparæ, the generally contracted, the generally contracted and flat pelvis and, in multiparæ, the generally contracted and flat pelvis (probability 75 : 77 : 76 per cent.). The treatment, especially as regards contractions of the first and second degree, must be expectant in the interest of the mother—and there is within possible limits no distinction to be drawn between primiparæ and multiparæ. Operative treatment under dangerous conditions (head above the brim) is not so often necessary in primiparæ as in multiparæ, owing to the smaller size and easier moulding of the head, but it is more unfavourable. The prospect for the child is more unfavourable (6 per cent.) in multiparæ, in whom, therefore, there is more reason to shorten labour, and the danger of interference is less than in primiparæ. Otherwise operation generally lessens the chance of live birth, especially when the head has not passed the brim.

Prophylactic version is only to be performed on absolute indication in multiparæ; the maternal chances are hardly worse than in spontaneous labour; but the indications and conditions are only fulfilled in 1 case in 500, and every other child still perishes; the fœtal mortality, therefore, cannot be thus improved even by one per cent., and prophylactic version is not of much value.

To promote and facilitate spontaneous births we have at our disposal :

(1) *Prochownik's diet,* which, when the woman comes under treatment early enough is a valuable method.

(2) *Walcher's position,* prolonged for any time is painful : it does no harm, however, and may be used for operations under narcosis; its good effects have not been demonstrated clinically or anatomically.

(3) *Hofmeier's impression:* often fails and may injure the child, but when the delay is due not to asymmetry between the head and the pelvis, but to feeble uterine contractions, and the delivery must be accelerated in the interests of the mother, it may be employed, and when successful obviates more serious operation or allows spontaneous expulsion. It is contra-indicated by distension of the lower uterine segment, and, as it may detach the placenta, may entail the immediate application of forceps.

When the head has passed the brim, and the lower uterine segment is not distended, expression may be tried; though apparently a rougher proceeding than the application of forceps, it is much less dangerous, requires no narcosis and is hardly considered an operation by the patient or those about her; otherwise we may apply forceps in the cavity or at the exit.

When the head has not passed the brim and expression fails or cannot be applied, to avoid perforation of the living child, the use of the high forceps may be indicated by feeble uterine contractions. The mortality of the mothers is not greater than in other operations, and though the fœtal mortality is 80 per cent., the remaining 20 per cent. would otherwise have to be perforated. Scipiades and Tarnier's forceps, always in the transverse diameter.

When the child is dead, craniotomy is often indicated in the interests of the mother, and must be followed by extraction if there be fever, foul liquor amnii or distension of the lower segment.

Perforation of the living child must be performed if immediate delivery is indicated and the high forceps cannot be used or fail, and any operation to save the child is out of the question or declined.

To avoid perforation of the living child, if the woman is seen early enough, we have at our disposal the timely induction of labour which is far more favourable for

the mother than later operations undertaken in her interest and than craniotomy, while by it 50 per cent. of mature children that would otherwise have to be perforated, may be saved—the technique is simple, by bougie, hystereurysis, or, if necessary, rupture of the membranes. The necessary conditions and indications are hardly ever present in primiparæ. The exact age of the fœtus is not always determinable, it should be 30 weeks at least—and not within 14 days of term, or we may perform Cæsarean section on relative indications when the conditions for induction have past. This operation is in the interests of mother and child, but the mother's consent must be obtained; it is not to be excluded in primiparæ though rarely indicated. The genitals should be aseptic—if possible the membranes unruptured.

Cæsarean section is absolutely indicated by a conjugata vera shorter than 6 cm., may be so even without consent; if the patient is seen in time and consent refused, abortion or labour may be induced.

Scipiades prefers hebosteotomy to symphysiotomy, but the conditions for Cæsarean section, which is a better operation, should be passed, and the mother's consent to greater risk than perforation must be obtained: the lower limit for the operation is a conjugata vera=6·7 or, in generally contracted pelves, 7·5 cm.; it should be done on the side where the occiput lies, and labour should be terminated by version or, after failure of impression, by high forceps (Doederlein now leaves it to nature). High forceps should not be tried previously unless all is ready for hebosteotomy.

In labours in contracted pelves conducted in the interests of the mother 8 or 9 per cent. of the children must be perforated. Even in kliniks perforation of the living child cannot be excluded.

PRACTICAL TEXT BOOK OF MIDWIFERY FOR NURSES. By ROBERT JARDINE, M.D. (Edin.), M.R.C.S. (Eng.), F.F.P. and S. (Glas.), F.R.S. (Edin.), Professor of Midwifery in St. Mungo's College, Glasgow, etc., etc. Fourth Edition. London: Henry Kimpton, 13, Furnival St., Holborn, E.C. Glasgow: 40—42, University Avenue. Price 5/- net.

The fact that this work has reached its fourth edition within 10 years shows that it enjoys popularity in the nursing world. If, in choosing a title, the word nurses had been omitted, the book might have appealed to those who wished to gain a superficial knowledge of midwifery. Dr. Jardine gives some excellent points in his Preface: he states that he has gone pretty fully into the difficulties of midwifery. "The more a nurse knows about the difficulties of midwifery work, the less likely is she to allow her cases to drag on until they are beyond hope before she sends for skilled assistance." We agree with him. He also states that the time spent in obtaining midwifery experience is too short: this seems to be the general idea; yet how is it to be rectified? Sound advice is given as regards the temperament of a nurse about to become a midwife.

The volume commences with a study of the anatomy of the body, together with some general medical principles. We are told that an ordinary thermometer should be left in for 10 minutes. Would it not be better to teach nurses to buy a good half minute instrument to start with?

The simplicity of the language pleases us greatly: the description of the Fallopian tubes as "between the folds of the broad ligament just in the same way as a clothes-line lies between the folds of a sheet thrown over it" and other such paragraphs make the context very easy to comprehend. Some minor embryological details are well treated, and these together with the following chapter which

deals with the signs and symptoms of pregnancy, should prove useful to the reader. The method of obtaining Hegar's sign is described; we should think that few nurses will be capable of understanding this. The disorders of pregnancy and abnormal pregnancy are well given, and the author commences the following chapter with a lecture on antiseptics and asepsis. He states that he prefers the aseptic method to the antiseptic, but later writes that to render instruments perfectly aseptic they should be soaked for at least 20 minutes in $^1/_{20}$ carbolic lotion; it is also stated that boiling is much quicker, but surely the first method should not even be suggested to a nurse. Practical points, such as "How to pass a catheter," are excellently given.

In a large number of cases it is impossible for a doctor, much less a nurse, to discriminate between threatened and inevitable abortion, and the advice given to a nurse to give ecbolics will be very likely to bring her into conflict with the law.

Labour and its mechanism are clearly explained, the method of arranging the room in a labour case being very explicitly given.

It is advised to palpate the abdomen, commencing with the pelvic grip, and to make the different grips standing up; this is not the best method according to most writers.

The description and management of the second and third stages of labour bring clearly into relief the terrible responsibility that the author incurs in writing such a work. We have tried to picture to ourselves a nurse following with precision the ritual laid down for the conduct of a normal delivery, and we cannot but be impressed with the fact that the contamination of her hands by working in the method described by Dr. Jardine would constitute a very real danger to the patient; and few teachers of midwifery will be found who would not declare that the woman's safety would be infinitely better assured were she allowed to deliver herself unaided. The notion that the nurse can support the fundus of the uterus, the perineum, can exert pressure on the sacrum, rub the legs of the patient for cramp, and then can proceed to further manipulations, including passing fingers into the vagina to look for the cord, and remain aseptic is to us preposterous. No doctor will voluntarily accept such responsibility, and why a nurse should be called upon to do so passes our comprehension.

"A tear of the perineum should only be stitched if torn more than half way back." The consequences of such teaching should give some work to the gynæcologist.

The author has a very useful note on "when the nurse should send for the doctor," which should appeal greatly to the latter.

We should like to have seen more stress laid on the care which a nurse should take of herself in treating ophthalmia.

Placenta prævia is well dealt with but it is not mentioned how many cases have been reported of an external accidental hæmorrhage becoming internal from plugging the vagina: rupture of the membranes is recommended for accidental hæmorrhage and "artificial dilatation and delivery by turning will often be necessary." Does Dr. Jardine mean that the nurse should perform these operations?

There is no good differential diagnosis between traumatic and atonic post-partum hæmorrhage. One of the methods of treatment recommended to nurses for this condition is to inject 30 grs. to the pint of suprarenal gland substance! The treatment of collapse is excellent.

Obstetrical operations and infantile diseases are explained well and the book concludes with an appendix of the Rules framed by the Central Midwives' Board.

The book is well printed and bound and would be useful to a monthly nurse, but much of the advice offered, were it carried out by a midwife, would be disastrous.

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